Mihaly Csikszentmihalyi

Applications of Flow in Human Development and Education

The Collected Works of Mihaly Csikszentmihalyi

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Introduction to Set "The Collected Works of Mihaly Csikszentmihalyi"

In looking over these volumes of *Collected Works*, there is no question that a few themes run through the four decades of their writing. For instance, the first report of my studies of creativity appeared in 1964, and in 2010 *Newsweek* magazine reported on my latest investigations on this topic. Other topics I have written on and off for the past 40 years are cultural evolution, play, and adolescent development. Each of these themes is vital to the continuing prosperity, if not the survival, of the human race. I hope this rather ambitious collection will embolden other psychologists to take on the big issues of our time, and laypersons to think about how to find more creativity and joy in their lives.

In looking at these articles I cannot help wondering about their origin: How did I end up writing all these words? What convolutions of the brain, what sequence of events and experiences led me to choose these topics, and conjured to keep me involved in them long enough to say something new about them?

I know that asking such questions undermines whatever scientific credibility I might have. After all, science is supposed to be an impersonal endeavor. One's history and subjective experience are in comparison trivial epiphenomena of no consequence to the unfolding of objective truth.

Yet, as a student of human nature, I cannot subscribe to this belief. The sciences—physics and chemistry, and the human sciences even more—are human constructions; even at their most rigorously abstract, their knowledge is a product of *human* minds, expressed in words and symbols most accessible to other human minds. And each mind consists of information coded chemically in the brain, plus the information collected by living in a particular environment at a particular time. Thus, scientific knowledge bears the stamp of the unique combination of genes and memes contained in the mind of those individuals who formulated and transmitted it. Hence, I must conclude that whatever I have written over these past 40 years has been filtered through my own unique place in the cosmos, and that therefore a brief acquaintance with the place where I am coming from may help the reader to put the ideas contained in these writings in a more meaningful context.

I remember quite clearly the first time I entertained the possibility of leaving a written record of my attempts to understand human nature. I was about 15-years old, standing across the Termini railroad station in Rome. It was a typical torrid summer day: dust was blowing under the sycamore trees, buses were honking, trolleys were screeching on the rails, and crowds were pushing in all directions.

I was waiting for a bus to take me away from this maelstrom to the cool serenity of the Palatine Hill, where I had been invited by a friend to spend the afternoon in his parents' luxurious apartment. I was poor—my father, who had been briefly appointed Hungarian ambassador to the Italian government, had almost immediately resigned his position in 1948, after a new Communist government had been put in power by the Soviet armies in Budapest, to replace the lawfully elected deputies of the centrist Small-holders' Party. Like many other choices my father made in his life, this had been the right one; on the other hand, he had to pay for his integrity by giving up his job and all we owned back in Hungary. We became stateless refugees in a country that was slowly recovering from the ravages of World War II, still hardly in a position to help the stream of homeless refugees from Central and Eastern Europe.

So while waiting at the bus stop, I only barely had the price of the fare in my pocket. Worse than that, I felt very ambivalent about this trip. My friend was a thoughtful, kind boy; nevertheless, I dreaded having become, in a matter of months, dependent on his generosity. The previous year, our fathers had been colleagues—his was the envoy of the Spanish government, as mine had been of the Hungarian. Now he continued to live the pampered life of the diplomatic corps, while I quit Junior High School in order to make some money translating and doing odd jobs. My friends and his parents were vaguely aware of my family's situation, and expressed sympathy and concern. When I was visiting, they made sure I ate well, offered me delicacies to take home, and occasionally had their chauffeur take us to watch a soccer game. None of this, however, helped salve my pride. In fact, it made matters even worse; not being able to reciprocate, I felt sinking deeper and deeper into a condition of helplessness I abhorred.

In this disconsolate condition, trying to avoid being pushed off the sidewalk by the cheerfully vociferous throngs of people walking toward the Esedera fountain and the bulk of the Baths of Emperor Diocletian hovering in the background, I held one thing in my hand that was like a talisman linking my carefree past to a future that while bleak at the moment, I was resolved to make shining again. Improbable as this sounds, it was one of the volumes of Carl Jung's *Complete Works* from the Bollinger series. I had encountered Jung's writing only recently, but was captivated by his vision. Waiting for the bus, a question suddenly popped in my mind: "If he could write about such things, there is no reason why I could not also . . .".

After all, my short experience of life had prepared me to ask some of the same questions that Jung was confronting. I had seen just a few years before what seemed like a solid society fall to pieces, a permanent way of life collapse. Both my older half-brothers had been drafted at the last moment to defend Budapest against the advancing Soviets, and both were lost—Karcsi, barely 19-years old, died with all but half a dozen of the 1,200 or so students of the Engineering School of the University, trying to hold up an armored division with ancient muskets just issued to them out of an armory; my brother Moricz disappeared without trace in some Russian gulag. Grandfather Otto starved hiding in the basement during the freezing cold of the 1944–1945 winter siege, and aunt Eva, just out of medical school, was blown apart by an artillery shell as she was caring for the wounded on

the streets. In other words, it had been a typical mid-century childhood for that part of the world—senseless, brutal, and confusing.

The war was now over, but few seemed to ask the question: How did this happen? How can we prevent it from happening again? Of course there was a lot of blame going around, with the left pointing its finger at the bourgeoisie for having collaborated with Fascism, and the right explaining the tragic turn of events by the brutality of the godless Commies; but these arguments could not be the whole story, right? There must be something deeper, something we did not understand yet, that held the keys to such irrational behavior . . . Yet most adults seemed to take these events in stride, chalk them off to unfortunate conditions that were unlikely to happen again. In the meantime, let's sweep our sorrows under a rug and try to resume life as if nothing had happened.

This attitude did not make sense to me. I felt that World War II had been a warning sign of a systemic fault in the human condition, one that needed a radical remedy before the Four Horsemen saddled up again. Because none of the grown-ups seemed interested in taking seriously this radical perspective, I had turned early in my teens to literature, philosophy, religion, where radical perspectives abounded. Yet I felt that these approaches to solving the mysteries of human behavior were often disconnected from the realities I experienced in everyday life; too often they relied on simplistic explanations or on mystical revelation, and true as many of their conclusions might have been, they required leaps of faith that I felt unable, or unwilling to take.

Then, as a result of some really serendipitous circumstances, I happened to read one of Jung's books. I was not even aware that a discipline called "psychology" existed. I thought at first that Jung was a philosopher, or perhaps a historian, or one of those scholars who wrote literary criticism. But whatever he was, I recognized in his writing the passion for going beyond the conventional assumptions about life, a radical re-evaluation of culture, society, and biology that I had been looking for but had not yet found.

Waiting for the bus in front of Stazione Termini was the first time it ever occurred to me that I might follow in the footsteps of scholars like Jung, and the other psychologists I had read following his writings. I should add that this epiphany took only a few minutes of that hot afternoon; almost immediately the realities of my position as a destitute high-school drop-out took over. The idea was attractive, but shamefully ridiculous. I never went back to it consciously after that day, although at some level the hope must have survived, because 6 years later, when I was making a career for myself in Italy using the linguistic skills I had acquired at home and during our travels, I decided instead to leave for the USA and study psychology.

The decision to become a scholar was rather unusual in our family. On both sides, landowning had been the career of choice. Father's family also included military men and a physician or two. My mothers' ancestors included several judges and provincial administrators as well as physicians. In recent generations, visual artists—both men and women—were superabundant; among nephews and nieces there is a well-known sculptor, a children's book illustrator, a photographer,

a textile designer, and the dean of the Hungarian Institute for Industrial Design. But no one, to my knowledge, had ever dabbled much in abstract knowledge.

The one exception was my mother. Although she—like most women of her generation—did not finish high school, Edith was very interested in literature; for instance, she translated Goethe's *Merchen* into Hungarian, and then into Italian. More to the point, throughout her adult life she kept adding to a manuscript she had started at the time she married my father, who had been recently widowed; it was a history of humankind seen from a Christian perspective, as a slow unfolding of knowledge that was to lead to the Kingdom of God. She was deeply influenced in this endeavor by the thought of Teilhard de Chardin, a French Jesuit who at one point taught physics to my brother Moricz at the Lycee Chateaubriand in Rome. It was mother who gave me a copy of Chardin's *The Phenomenon of Man*, a book that opened up wondrous vistas to my teenage eyes. My mother's History was a brave endeavor; the onion-skin pages of the manuscript fluttered in the candlelight of World War II, with its optimistic message seemingly grossly inappropriate given the atrocious realities. She laid her copy away in disgust several times, but then took out her battered typewriter again, to add a few more centuries to the progress of goodness on earth.

These childhood experiences—the senseless butchery of World War II, my mother's belief that history had a meaning, the evolutionary vision of Teilhard, the contemporary psychology of Jung—must all have helped shape the writings contained in these volumes. At the same time, the path that led to them was a tortuous one. Because, when I arrived in Chicago in 1956 and took my entrance exams to the University of Illinois, I soon found out that neither Karl Jung, nor (God help!) Teilhard de Chardin were considered serious scholars. Reading them exposed one to ridicule, and citing their work in a student essay earned big question marks from the teacher's red pen.

The period I spent at the University were the last few years of the academic hegemony of *Behaviorism* and *Psychoanalysis*, the two currents of thought that had been ruling American psychology for the last two generations. There were useful truths to be found in both of these perspectives, but by the late 1950s they already seemed more like historical relics than keys to the future.

What follows is a record of how I tried to combine what I thought were the best insights of the visionary Europeans who had shaped my childhood, with the skeptical empiricism of my new homeland. Even though I have not found definitive answers to the questions that initially motivated my investigations, I can look back on this half century of work with some feeling of accomplishment. I hope that the reader will also agree that the chapters that follow provide fresh light on some of the mysteries of human existence.

Introduction to the Volume

When in the late 1970s, I started to study what later came to be called the flow experience, I thought of the topic as an interesting but marginal diversion with little to contribute to psychology or the social sciences In general. My main motivation was to understand my own experience: Why was it possible for people to feel most alive when they were doing things that were not important in "real" life—such as singing, playing chess, hiking in the mountains—while they so often felt bored or restless at home, at work—in other words, during most of their lives?

So at first the research on flow focused mainly on leisure activities like sports or art, because these were voluntary activities that people chose to do almost entirely because doing them was preferable to the alternative activities they found in their lives. As a result, after the publication of *Beyond Boredom and Anxiety* in 1975 and for many years afterwards, the concept of flow seemed destined to be of interest, at most, to scholars studying sports, art, and other "autotelic" activities—that is, activities people did not because they produced anything useful like work did, but mostly for the sake of the experience they derived from doing them.

After a few years, however, I realized that the real value of studying flow might not be in the field of leisure, but in what it might contribute to changing the conditions of "real" life, and help make everyday experience more "autotelic." If we understood what conditions make games so enjoyable, would it not be possible to make work, or family life, more enjoyable as well? Could we not learn how to make life itself as enjoyable as making a work of art, or dancing a minuet, or playing a game of chess?

Of course, it would have been very easy to dismiss these ideas as the naive byproducts of an excessively idealistic imagination. Fortunately, I was used to being thought of as an impractical dreamer, so I kept on dreaming. One place to begin applying what we were learning about flow, I thought, were schools. I was still young enough to remember the many years spent in terror and in boredom sitting on the coldly abstract benches of so many classrooms. Was what I had learned in school worth the suspended animation of all those years? Perhaps, I thought, understanding what causes flow might help design schools that not only teach, but inspire children to learn because they have learned to enjoy learning ... .

I was aware that the task was not going to be easy. After all, the great wooden gates to the elementary school of Csikszentmihaly, the village where one branch of

my father's family came from, had carved on it the warning: *A tudás gyökerei keserüek, de güuöolcsei édesek*; in other words: "The roots of knowledge are bitter, but its fruits are sweet." The elders of the village who had the carving made (and Marcus Tullius Cicero, who had coined the phrase a couple of thousands of years earlier) were right: the roots of knowledge are indeed often bitter. Researchers who study the development of talents have concluded that to learn any complex skill well takes about 10,000 h of practice—even a genius like Mozart needed that much before he could play the harpsichord well, and any great athlete needs similar practice time before reaching competitive levels. And the practice can be very boring and unpleasant. While this state of affairs is all too often true, the consequences are by no means self-evident. Many pedagogues conclude that this implies that they should make the roots of knowledge as bitter as they can, so as to make the fruits even sweeter. "No pain," they conclude, "no gain."

Yet I remembered how, back in my childhood, during a vacation in my grandparents' summer place in the Carpathian Mountains, I was shaken up one afternoon hearing my grandfather scream from the bedroom where he was taking a nap. "Something wrong, Grandpa?" I asked running up to his bed. He looked haggard and confused, but he waved me away saying "No, it's nothing, don't worry . . . I just had a bad dream." I wondered what could have caused my noble 73-year old grandfather such a nightmare; later he explained that he had them often; the dream that frightened him so much took place in the school where over half a century earlier he had to take the examinations for the high-school diploma. As a part of his exam, he had to recite from over a thousand lines of the *Odyssey* in the original Greek. Now half a century later, as an old man with a long and distinguished career, the memory of trying to remember the ancient lines in front of the impassive line of examining professors still made him cry like a child.

But is this how it must be? After all, the acquisition of knowledge is something that we all find pleasure in—just look at any infant learning how to hold a cup in her hands, or how to walk, how to throw a book across a room, or how to talk, how to ride a bicycle ... . Even when the learning is hard, it is not bitter when you feel that it is worth having, that you can master it, that practicing what you learned will express who you are and help you achieve what you desire. As far as I know, my grandfather never used much ancient Greek after he left that dreaded examination room. So perhaps instead of taking pride in making the roots of knowledge as bitter as possible, we should try to make them sweeter—and then young people will be more likely to continue learning not just because they have to, but because they want to do it as well.

As it turned out, each year it has become more clear that what many people believed to be an idealistic fantasy was in fact a quite promising blueprint for improving the quality of life. If what the psychologist Kurt Lewin said is true, that there is nothing more practical than a good theory, then the theory of the flow experience must be quite good, given all the practical applications it has found. These applications range from business to politics, from medical practice to the design of video games, from training Olympic athletes to surgeons.

In this volume, I have collected a number of articles where I try to develop ideas about how to make education, and more generally the process of learning to live a good life, more enjoyable. The first 11 chapters are theoretical reflections—but remember, theory is the mother of good practice. Some of the chapters are very general, looking at what it means to be a human being, what it means to be a person, when we look at life from the perspective of flow. Others are more narrowly focused on such topics as consumption, education, teaching, and learning. Even though these may sound like specialized topics, they are really intended to help laypeople reflect how they can arrange their lives in such a way as to leave a small ecological footprint while getting the most enjoyment.

The second section of the volume contains a dozen empirical articles on similar topics. These require some familiarity with research in the social sciences, but should be still easily accessible to anyone who took a course or two in psychology or sociology at a university. They deal with the development of identity and self-worth; with the formation of goals and motivation; with loneliness and family life. While these chapters are necessarily somewhat more dry and formally structured than those in the previous section, I hope the reader will feel in reading them some of the enjoyment that the pursuit of empirical research provides. Speaking for myself, I can honestly say that even though I have done many interesting and exciting things, from the first ascent of difficult peaks to traveling to some of the most beautiful places in the world, I have experienced few things in life as satisfying and exciting as finding patterns in a seemingly meaningless array of numbers; patterns that confirm and expand the ideas that led the researcher to collect the data. And, sometimes, the most exciting moments are those when the data refute the researcher's ideas, at the same time revealing an even more interesting reality than what he had initially suspected to be true.

The studies collected here suggest that it is indeed possible for schools to provide autotelic experiences. Just as grown men and women can find joy in their work, young people can also find joy in their schools. Unfortunately it does not happen very often, but under the right circumstances students definitely experience flow in their classes, and are therefore motivated to study on their own. The findings confirm what many educational pioneers have concluded time after time. For instance, Maria Montessori was led to believe working with the slum children of Rome that the natural or "normal" condition of children was to want to learn, and the task of educators was to "normalize" children by creating opportunities for them to keep on learning. Not surprisingly, the Montessori schools, as well as other new pedagogical initiatives like the thousands of Big Picture magnet schools that have sprouted in the USA in the last few decades, have found inspiration in the concept of making flow a part of their pedagogical aims. In Europe, Denmark is probably the nation where the educational implications of flow are most actively pursued, both at the Universities of Aarhus and Copenhagen, under the direction of Hans Henrik Knoop and his colleagues. In many other parts of the world, from Australia to Mexico, flow and positive psychology more generally are beginning to influence how young people are being taught.

But of course this is only the beginning. In time, I hope, it will become clear to everyone that to be alive means not just to survive in good physical health, nor just to become a successful, respected citizen who does everything that is expected from him by society. To really live means to be able to express one's unique individuality, to hone one's strengths to their limits, while becoming fully part of the human network, and contributing to it. That is what living truly means, and that is what schools should teach, and that is also the ultimate goal of one's work.

Part I
Theoretical Contributions

Chapter 1
Does Being Human Matter?

On Some Interpretive Problems of Comparative Ludology

Mihaly Csikszentmihalyi

Peter Smith's target article, coming fast on the heels of Fagen's (1981) monumental book on animal play, leaves the student of *human* play with a feeling of contented satiety, an impression that our ethological colleagues have finally wrapped up all the comparative information that has been accumulating over the past century, and thus made it readily accessible to scholars in related fields. Why is it then that gratitude for such painstaking synthesis produces a faint echo in the mind, a nagging voice that seems to say: "enough is enough?" Perhaps it is because perusal of the detailed facts about animal play, and attendant speculations about its functions, run the risk of confusing our understanding of human play, rather than bringing light to the subject. It certainly reminds this commentator of the truism that, for a psychologist, the only mistake that is worse than ignoring the evidence of comparative ethology is taking it too seriously.

One thing that one would expect from an article like this one, which contains the word "evolutionary" in its title, is a stimulating perspective on the changing opportunities, skills, niches—in short, the changing "reality"—that characterizes different species, and the same species over time. Yet the ontological assumptions underlying Smith's article are strangely rigid. The few direct references to "the real world" and to "escape from reality" reinforce one's sense that Smith's latent assumption is that human behavior is best viewed as a pattern of adaptation to a solidly structured physical and social environment.

Yet what is so amusingly obvious about human behavior is that it continuously creates so-called "reality," which other humans subsequently mistake for something external existing independently of human volition. Thus it becomes

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exceedingly tricky to talk about real worlds and escapes from reality in connection with human adaptation. When Einstein wrote that "one of the most powerful motives that attracts people to science and art is the longing to escape everyday life" (Einstein 1935, p. 124) he was onto the ambivalence contained in the notion of "escape." Much of what we take for granted as reality nowadays is the result of someone's desire to escape from a past reality.

It was Huizinga (1950) who first suggested that most serious social institutions, like science, law, religion, and warfare, were created and developed in ludic contexts. Unfortunately, his perspective must have been too radical, because it has not informed much systematic research thus far. Yet one cannot help noting, for instance, that the development of automobiles, airplanes, and computers in our century owes more to ludic than to any other kind of motivation.

Along that line, it was somewhat startling to read Smith's proposal "that play could be superseded by direct training or instruction as more optimally designed forms of practice and learning." True, the author soon afterward admits that this assumes "that children can be adequately motivated by external ('work') as compared to internal ('play') goals." It does indeed. But what is most interesting about this last quote is the sudden appearance of an equation between play and internal goals. What, in the long discussion of play as practice for later (i.e., more "realistic") skills, prepares one for such a startling insight? Why is play intrinsically motivating? If its "function" is merely as a means, then it seems unfair to attribute "internal goals" to it.

The main positive conclusion of the target article is difficult to dispute. In fact, to my knowledge, it has not been disputed for the past 100 years or so. That play rehearses competitive social skills, especially those of the chase-escape variety, in a safe context, appears also to be a common feature of children's games in a great variety of cultures (Sutton-Smith 1978). The negative conclusions of the article are its most original contribution, and thus they are more controversial. Smith interprets the evidence to show the unlikelihood that play was selected because it rehearses cooperative social skills or cognitive skills (except in chimps and humans); the contribution of play to the emergence of innovative behavior is seen as incidental, and then only among higher primates.

All this might be true, but here one wishes that writers on the evolution of play had a distinction equivalent to Kuhn's (1970) conception of "normal" and "revolutionary" science. For while by definition the majority of selective events act on the "normal" repertory of species-specific behavior which optimizes survival and reproductive fitness in the current *Umwelt*, for evolution to occur there must also be a tiny fraction of such events that differentially select behaviors not adaptive to the actual *Umwelt*, but only to a potential one. It is easy to miss this cutting edge of evolution if one focuses exclusively on quantitative trends which, again by definition, reflect only "normal" and not "revolutionary" operations.

Finally, one might note that at least as far as human play is concerned, what is important and interesting about it does not so much consist of the universal "design features," but the variety of forms it develops, and the uses it serves. Similarly, it is not the universal functions of eating or sexual behavior that

illuminate human behavior as such, since these functions are pretty much the same across phyla, but the peculiarly idiosyncratic patterns and meanings that feeding or sexual bonding develop in different times and cultures (Geertz 1973). Of course, one should not ignore the common roots of such behaviors—the excitement of the chase can still be felt even in the highly abstract games of chess or bridge—but neither should one try to explain the present only in terms of the past.

Chapter 2
The Development of the Person: An Experiential Perspective on the Ontogenesis of Psychological Complexity

Mihaly Csikszentmihalyi and Kevin Rathunde

What is a Person?

The obvious answer to the question "What is a person?" would probably focus on physical characteristics, for example, "An individual member of the human race." Of the 14 major usages of the word listed in the *Oxford Dictionary of the English Language*, most refer to such natural, biological attributes. But it does not take much thought to realize that when we speak of a person, the biological attributes are not the only important ones. The term conveys connotations of dignity, respect, authority, and a great number of other similar nuances that are equally important to its meaning: for instance, "A man or woman of distinction," or "A human being having rights and duties recognized by the law."

What a person is cannot be defined by relying on objective physical characteristics alone. Or rather, one can do so, but not without trivializing the very concept that needs to be explained. For a person is not a material being, or a natural category, but a sociocultural construction. Each community develops an image of what a person is, what are its defining features, and what constitutes a "good" person. Thus, it is not possible to know what a person is without understanding the qualities that a social group ascribes to a human being that is also a person, and these qualities may change with time and circumstances.

For example, the traditional Hindu view is that a person is not an individual, but a position in a network of social relations (Marriott 1976); a physical specimen of the species *Homo sapiens* is not a person, unless he or she belongs to a group and

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fulfills the responsibilities thereof. The classical Chinese view and the understanding of the native tribes living along the Amazon River are not that different (Lévi-Strauss 1967). In most cultures the individual in its physicality is no better than any other animal. It takes the transforming power of culture and society to turn the animal into a person.

Stressing the fact that the concept of person is socially constructed seems to imply a relativistic position. It may suggest that the criteria of personhood are more or less arbitrary, the result of chance historical developments in different places and times. However, we do not believe this to be true. The definition of what a person is may vary a great deal across times and places, yet it seems that certain common core elements appear again and again. These common traits presumably are adaptive and have emerged during the sociocultural evolution of humankind because—relative to alternative definitions—they have been more useful in assisting the biological survival of those who held them and the survival of the culture of which they were a part.

A somewhat crude thought experiment may help illustrate how this evolutionary process might have worked. Suppose somewhere on the globe there existed two neighboring nations, each with its unique culture and language. One of the two, the Agazzi, had developed an image of the person as "someone who is exceptionally good at outsmarting his neighbors." The other group, let's call them the Bambani, defined the person as "someone who fulfills community expectations." Assuming that everything else in the environment of the two groups is the same, and that cooperation is a better survival strategy under environmental pressure, it makes sense to assume that in the face of hardship the Bambani would fare better than the Agazzi and would be less likely to disintegrate.

Of course, real life is much more complex than this simplistic thought experiment suggests. Nevertheless, real societies often approach this level of simplicity in constructing their theoretical model of what a person is. The Yamomamo who live in the jungles of Venezuela assume that human beings are violent and constantly aggressive, and act accordingly (Chagnon 1979). The Dobuans of Melanesia believed that all people were deceitful sorcerers, and based their everyday life on constant mutual suspicion (Fortune 1963). In modern times, the images of Aryan or socialist person-hood developed by the Nazis and the Soviets, respectively, made possible the development of policies and institutions that have had profound effects on recent history and justified the murder of tens of millions of individuals who did not fit those images.

Cultures based on naked selfishness and aggression are unlikely to survive long. But even if they do, the point is that the model of personhood a given group adopts is not a neutral choice. It has implications for survival that are in principle no different from what kind of technology the group adopts. If the models adopted by different cultures at different times share important similarities, it is sensible to conclude that those common elements of personhood are important for the survival of any human group, anytime and anywhere.

This image of the person becomes a guiding principle for how the culture deals with human beings: the laws, the institutions, and the behaviors involving people

are informed by it. For instance, each culture looks at child rearing and education through the lens of its image of what a person is. If the person is viewed as aggressive and competitive, this belief will inform how children are treated—how adults interpret their behavior, which childhood actions are punished or rewarded. Parents will stress competition, and schools will make sure that each child treats peers as contenders. If the person is viewed as a node in the social network, then child-rearing institutions are more likely to emphasize cooperation and mutual responsibility. In any case, without a concept of personhood, it would be difficult, if not impossible, to sustain social life.

Person and Personality

The word *person* as used in most languages related by common European roots derives from the Latin *per sonare*, "to sound through." This derivation is based on the fact that in ancient Greece and Rome, stage actors wore masks that represented their character (e.g., good or bad), and these masks also served as primitive loudspeakers, helping to amplify the actor's voice. Our concept of personality is influenced by this image of an actor playing his role through a mask that defines and amplifies the script he is following. For this reason, philosophers and social scientists often view personality as something unauthentic, a disguise rather than the expression of the individual's genuine essence.

For example, Jung (1954, 1959, 1960) borrowed the Latin term *persona* to refer to the social masks we learn to wear to hide, from ourselves and from others, the real desires and possibilities that would be too dangerous or difficult to express. By forming a persona, the individual conforms to a social definition of himself or herself; he or she internalizes the collective ideals of the community (Homans 1979). The sociologist Goffman (1959) developed an entire model of selfhood based on such a dramaturgical model. From his perspective, most of what we do in our lives is a stage presentation. People compete for the roles that provide the greatest advantage, and social interaction basically consists of rehearsing, accepting, or rejecting such roles. Both Jung and Goffman saw personality as an artificial, strategic product. A major difference between them is that whereas Jung believed that under the mask of the persona there were deeper and more genuine structures of the self, Goffman seemed to believe that the mask concealed a void.

Personality refers to the differences among individuals wearing different masks, for example, one individual's being more outgoing, or more neurotic, or more introverted than the general norm. In contrast, the term person refers to what is common to all personalities, that is, to what makes all individuals in the same culture able to interact with each other on the same stage. Each person borrows a particular mask from the cultural repertoire so as to represent a given identity that will express and amplify his or her inborn talents. In this process of borrowing and adapting, the individual constructs a personality.

But what is common to all personalities, or, in other words, what is the person? It follows from what we have said so far that the most basic trait must involve the ability to take a role on the cultural stage. This implies the ability to recognize the roles others play, to respond appropriately to cultural cues, to accept one's role in the shared script. It is for this reason that most preliterate societies considered members of other tribes nonpersons, because their languages and habits were not understandable. The Greeks called everyone else "barbarians," because the language they spoke sounded like meaningless *bar–bar* to Greek ears. In many languages, like the Navajo, the term *people* is reserved exclusively for members of one's own tribe. The great world religions that flourished from India to Europe starting about 25 centuries ago began to break down these tribal distinctions and envisioned a common humanity regardless of specific customs and languages.

But personhood still depends on the ability to participate in *some* culture, even if it is not one's own. Thus "feral children" who survive as infants outside the boundaries of society, and grow up without learning a language or a set of norms, are often not considered to be "persons." Nor are generally recognized as persons those unfortunate individuals who, because of genetic defects or some early trauma, live a vegetative life and are unable to interact with anyone else. Crack babies and severely autistic persons are limit cases; whether one considers them persons or not depends on how broad a definition one holds. Some religious people may include them under the category of persons; others may not. The same applies to mass murderers and other psychopaths or sociopaths: they stretch the definition of the concept at the boundaries.

Including and excluding individuals from personhood may seem a cruel act, smacking of prejudice and akin to racism. Yet social groups tend to apply this seal of approval to their members to keep a certain standard, a minimum requirement for being recognized as belonging to the community. A linguistic mark of distinction between those who can and those who cannot take part in normative interaction might be a necessary requirement for maintaining social order. Therefore, the distinguishing traits of personhood depend to a large extent on the priorities that inform a particular culture.

The Construction of Personhood Over the Life Span

Because personhood hinges on the ability to interact and function in a sociocultural context, it follows that persons are not born, but are made. Different cultures use different techniques for making sure that children acquire the knowledge, behavior, and emotions that will enable them to function appropriately as adults. This process of socialization is often informal, enforced by the constant pressure of public opinion. But most cultures evolve formal mechanisms of socialization, often reinforced by complex rituals and ceremonies.

India provides some of the clearest examples of this process. The classical Hindu culture has taken great pains to make sure that from infancy to old age its

members conform to appropriate ideals of behavior. "The Hindu person is produced consciously and deliberately during a series of collective events. These events are *samskaras,* life cycle rituals that are fundamental and compulsory in the life of a Hindu" (Hart 1992, p. 1). *Samskaras* help to shape children and adolescents by giving them new "rules of conduct" for each successive step in life (Pandey 1969, p. 32).

As the Indian psychoanalyst Kakar (1978) wrote half-facetiously, *samskaras* mean "the right rite at the right time…. The conceptualization of the human life cycle unfolding in a series of stages, with each stage having its unique 'tasks' and the need for an orderly progression through the stages, is an established part of traditional Indian thought… one of the major thrusts of these rituals is the gradual integration of the child into society, with the *samskaras,* as it were, beating time to a measured movement that takes the child away from the original mother-infant symbiosis into the full-fledged membership of his community" (pp. 204–205).

Rites of passage certify that a child or young adult is ready to enter the next stage of personhood, until he or she grows old and has played every possible role that is available in the community. In some cultures, a man or woman is not considered a full-fledged person until the first grandchild is born. Being a grandparent means, among other things that (a) one is fertile, and therefore endowed with sacred power; (b) one is successful, because only reasonably wealthy parents can find spouses for their children; and (c) one is wise or at least experienced, having lived this long (Le Vine 1980). Only when these qualities are finally achieved is a person finally complete.

In Western societies, transitions to higher levels of personhood are no longer well marked, except in terms of educational progress, where various graduation ceremonies punctuate one's academic career. Religious progress, marked by such ceremonies as the Jewish bar mitzvah and the Catholic sacrament of confirmation, are bare vestiges of the importance that the spiritual formation of personhood had in the Judeo-Christian tradition. But even though in our society we no longer have clearly marked transition points to higher levels of personhood, we do expect different qualities from people at different stages of life.

So, while we lack communal rites to celebrate a person's passage from one stage to another, developmental psychologists recognize the importance of such transitions in their descriptions of the life cycle. For instance, Erikson (1950) focuses on the sequence of psychosocial tasks we must confront: forming an identity in adolescence, developing intimacy in young adulthood, achieving generativity in middle age, and finally bringing together one's past life into a meaningful narrative at the stage of integrity in old age (see also Vaillant 1993). Robert Havighurst (1953) shifted the emphasis more on social-role demands, and developed a model of life transitions based on changing expectations related to age: for example, the student, the worker, the parent. Similar models were proposed more recently by Levinson (1980) and Bee (1992). Developmental theories usually do not make the claim that these tasks are always resolved, or even that the person is necessarily aware of them. But unless they are successfully resolved, the person's psychological adaptation is likely to be impaired. Common to these models is the assumption that individuals

who deviate from normative developmental stages without good reason run the risk of compromising their chances for full personhood.

And while current social norms allow an astonishing amount of leeway in the kind of behavior and attitudes an individual might display, nevertheless we share a tacit consensus that some ways of being a person are preferable to others, in that they best serve both personal and social growth. We shall focus in particular on these "masks"—or optimal ways of being a person—to identify those adult outcomes that might be most important to recognize and nurture in childhood, when they are still in their embryonic form.

Thus, the purpose of this chapter is to review briefly the most valued traits of personhood recognized in our culture as well as in others. We shall claim that the trait of *psychological complexity* meets the specifications for the central dimension of personhood. Then we shall examine how complexity unfolds through the life cycle, beginning with its manifestations in old age. By starting at the end of the life span and working our way back to childhood, it will be easier to recognize the patterns that are more likely to result in a successful unfolding of the potentialities for personhood. Of course, there is still much disagreement about the nature of continuities throughout the life span, and even about whether any childhood conditions will lawfully relate to adult conditions. We shall not try to address such questions, which are amply dealt with in other sections of this Volume. Suffice it to say that we are in accord, for instance, with the "action-theoretical" perspective developed by Brandstätter in chapter "Intrinsic Rewards in School Crime", this Volume, according to which individuals are both the active producers as well as the products of their ontogeny; and with the "modern holistic interactionism" explicated by Magnusson and Stattin (chapter "The Ecology of Adolescent Activity and Experience", this Volume), according to which the person develops as an integrated, purposeful, and dynamic component of an individual-environment system. If these perspectives are correct, then knowing the desirable end--points of ontogeny will make it easier for active, intentional individuals to shape their actions early in life so as to make them most likely to achieve optimal developmental outcomes.

Despite differences in content across various cultural contexts, across domains of activity, and across points in the life course, and despite, then, the inevitable differences in what will be recognized as constituting "development" and "optimal functioning," we believe it is possible to say something affirmative about optimal development. One fruitful direction is to look beyond outward appearances and focus on how—within any system—optimal functioning involves the meshing of the needs of the self with those of the other. In addition, from a phenomenological perspective, it is reasonable to believe that a person who succeeds in enjoying the synergy of individual and systemic needs will have achieved that measure of happiness that philosophers have long taught us to be the ultimate goal of existence.

There are compelling reasons to take a position on optimal patterns of development, despite the ambiguity and risk involved. Bruner (1986) has argued that developmental psychologists cannot just describe but must also prescribe optimal

ways of developing. If not, they abdicate their role in the construction of the public meanings that societies depend upon for self-regulation. When such metatheories about the "good person" and the "good society" are explicitly delineated, they not only add to the public dialogue, they also provide a selective principle for determining the nature and direction of developmental research. Rogers (1969) said much the same thing in defense of his conception of the optimal person; he challenged others: "If my concept of the fully functioning person is abhorrent to you… then give *your* definition of the person… and publish it for all to see. We need many such definitions so that there can be a really significant modern dialogue as to what constitutes our optimum, our ideal citizen" (p. 296). More recently, Wertsch (1991) has argued that the essential task of developmental psychology is to identify and point out the ways individuals learn to enact the roles available in their culture without losing their autonomy in the process.

To accomplish the goals set forth above, we have chosen a somewhat unconventional strategy: to begin at the end of the life cycle and work our way back to infancy. Starting with the fully developed person allows us to draw from a recent study of creativity in later life, in which we describe in detail the mature self-regulation and complexity that *potentially* characterizes later life. Because physical maturational changes culminate in adolescence, and the periods of middle and late adulthood often are marked by declines in some physical and cognitive skills, theorists have struggled to conceptualize whether adults are in fact "developing," declining, or simply changing (Pearlin 1982). Our perspective on this debate is similar to Baltes and Smith's (1990) "weak" developmental hypothesis about the possibility of adult development culminating in wisdom. This hypothesis states that increasing age does not necessarily result in wisdom, and that on average older adults may not demonstrate more wisdom than younger ones; but because wisdom is conceptualized as an "expertise" that requires cumulative practice, and because increasing age provides for more experience and time for such practice, notable outcomes of wisdom will be disproportionately seen in older adults.

A second reason for starting at the end of the life cycle is that to do so facilitates our search for the beginnings of mature self-regulation and complexity in the periods of infancy and childhood. If one first articulates a clearer picture of desirable adult developmental outcomes, then it is easier to search the literature about earlier developmental periods and, it is hoped, find the connections that link certain patterns in childhood with desirable adult outcomes. We will explore in particular the link between the fully functioning adult and the neotenous development of children that provides opportunities for play and discovery (Gould 1977).

Ideal Outcomes of Adult Development

What kind of person best represents the goals of human development? At first it might seem that such a question cannot be answered in the abstract, because each culture requires such a different set of roles to be played by a successful adult as to

make any generalization impossible. Yet, it could be argued that there is a minimum sets of traits that are valued in every human community, and these could be held up as the ideal outcome that should inform developmental processes from early childhood throughout life. We shall focus here on six conditions for complex adulthood and old age that seem relatively invariant and thus can provide guidelines for optimal development in childhood as well as later in life.

In the first place, older persons who are *healthy* and *fit* can play their role on the cultural stage more effectively and without disrupting the lives of those around them. In earlier historical periods, individuals whose health was dubious rarely survived to old age. In communities that lived on the edge of subsistence, such as the Inuit, the aged who could no longer follow the movements of the tribe in search of game asked to be left behind in an "igloo without doors," to be buried alive, as it were, so as not to jeopardize the survival of their kin by slowing down their progress. In technologically advanced societies, the health costs of the aged—Medicare, nursing homes, and so on—can become a severe financial burden on the younger generations and cause potentially acute social conflicts.

According to current medical opinion, we could live and be healthy much longer than most of us actually manage to do—provided we take adequate care of our physical well-being (Bortz 1996; Erikson et al. 1986; Williams 1995). But it is rarely possible to reverse in the second half of life unhealthy habits acquired in the early years. And while medical advances are constantly adding to our understanding of health and disease, the actual conditions of existence—including environmental factors such as pollution, poor diets, increasing dependence on drugs and on passive entertainment—seem to conspire against developing habits of fitness that will serve us well in later life. For example, the frequency of obesity in childhood and adolescence is increasing in the United States, even while research shows that obese adolescents have a shorter life span and more ailments if they manage to live into old age. An approach to child development that leaves out of reckoning physical criteria of well-being is therefore severely limited.

An emphasis on health should not be construed as implying that only the physically fit can reach a successful adulthood. In fact, many individuals disabled by accidents or congenital illness have lived extremely fulfilling lives and contributed greatly to society. Franklin Delano Roosevelt was not deterred by childhood polio, and Thomas Alva Edison accomplished his extraordinary feats despite a great variety of early health conditions. But it is usually the case that if disabled individuals are not to be a burden to themselves and the community, they have to develop even greater intellectual, affective, and motivational strengths to compensate for a lack of physical performance at levels ordinarily expected from members of the culture.

A second criterion of optimal aging that is unlikely to be contested in any human environment is the ability to *preserve an alert and vital mind.* This is not the place to review the very large literature on cognitive functioning in the later years. The only points relevant to this chapter are that superior intellectual functioning in old age is universally desirable, and that such superior performance is made more likely by the continued exercise of the mind. The tag "Use it or lose it"

applies to both physical and mental capacities. The implications of these facts for child development are rather clear, even if not very surprising.

Not so widely understood, however, is the nature of the "exercise" that preserves mental vitality. In our opinion, it is not so much working on the solution of problems that is crucial, as it is to preserve an abiding curiosity and interest in one's surroundings. Adding columns of numbers or solving crossword puzzles is better than not using the mind at all, but the real vital intellect is one that keeps the fresh wonder of childhood into old age. At 76, Jonas Salk, who implemented the vaccine against polio, said "I still feel like a child, an adolescent, as if I still had lots to do," and this perception is quite common among successful older people.[1] The implication for development is not that a child should accumulate facts or knowledge, but rather that he or she should develop habits of intellectual curiosity that lead to genuine lifelong learning.

A third criterion of developmental success is the *continuity of a vocation.* Whether the activity is one the person has pursued throughout the middle years of life, such as a profession or a family role, or whether it is a new activity that is taken up first in old age, what counts is that the person be committed and involved with a role—or mask—that is valued by the self and preferably by others as well. The role may be an active one or a passive, reflective role, such as that of the Brahmin elder who was expected to withdraw from the cares of the world and meditate after his first grandson came of age. The important issue is that the person continue to remain involved in a meaningful activity.

One of the peculiarities of contemporary cultures is that they have few roles available for older individuals. "In America we no longer value the wisdom of older people," says the novelist Madaleine L'Engle, "whereas in so-called primitive tribes the older people are revered because they have the 'story' of the tribe. And I think as a country, we are in danger of losing our stories…. I think chronological isolation is awful and chronological segregation is one of the worst of segregations." The implication of this situation for earlier development is that, for successful aging, a person cannot depend on the assurance that social roles will be available, but must learn to develop skills and interests autonomously. A person who has devoted most of his or her adult life to a business, whether as an assembly-line operator or as a top executive, cannot count on having meaningful opportunities for action after retirement. Unless one is prepared to play a complex role even in the absence of socially structured statuses, it is likely that old age will fail to provide rewarding experiences. It is for this reason, among others, that the cultivation of psychic autonomy all through the life course is such as important part of development (Deci and Flaste 1995; Deci and Ryan 1985).

These three prerequisites of successful aging—fitness of body, fitness of mind, and a continuation of active involvement with a meaningful role—are aspects of

[1] Quotations not otherwise attributed are taken from interviews the authors and other members of the University of Chicago research team collected in the course of a project entitled Creativity in Later Life, sponsored by the Spencer Foundation (see Csikszentmihalyi 1996).

the continuing differentiation of the person, having to do with the cultivation of individual skills up to the end of life. The next three prerequisites deal with the continuing integration of the person with complex interpersonal systems. To achieve complexity, a person must not only be differentiated as a unique individual, but must be integrated into wider networks of social and cultural relationships.

Successful aging is often defined in terms of *keeping up relationships with family and friends* (Ryff 1989). In highly technological societies such as ours, geographical mobility tends to weaken social ties, with the result that older persons are often cut off from meaningful contact with other people. It is difficult to keep in touch with one's childhood friends, or even with one's siblings, children, and grandchildren. Yet, older people depend on friendships to maintain the quality of their lives almost as much as teenagers do (Larson, Mannell and Zuzanek 1986), so loneliness can become a severe blight in the later years. Conversely, the younger generations also miss the potential contribution of older individuals when society is segregated by age.

What are the implications of this state of affairs for child development? Perhaps the most basic suggestion is that our attitudes toward child rearing have been informed by an excessive emphasis on individuation: we encourage children to value their own freedom, initiative, and personal success at the expense of cultivating a sense of responsibility and belongingness. We should realize that such a one-sided preparation for life is not only destructive of societal cohesion (Bronfenbrenner 1979; Damon 1995), but is also a disservice to the individual, who is likely to be unprepared for the parts he or she will have to play in later life. Benjamin Spock, whose *Baby and Child Care* was first published in 1946 and influenced generations of U.S. parents, in a 1991 interview stressed the fact that we have overshot the mark in teaching independence at the expense of interdependence: "men as well as women should re-evaluate what is satisfying, and see that it comes down to human relations. It comes down to love, service, kindliness. And it consists in putting the family in first place… and then community relations is second."

In fact, the fifth prerequisite of successful aging is *continued involvement in the community.* This includes not just one-on-one relationships, but taking an active part in the social, political, religious, and cultural affairs of one's environment—whether at the level of the neighborhood or of the nation. Again, the problem is that in our culture there are no ready-made roles for older people to step into. Most meaningful opportunities are reserved for the young. Yet, it is perfectly possible for a person in later life to play a significant role on the social stage, provided he or she prepared for it earlier.

It is important to realize that here, too, what the sociologist Robert Merton has called the "Matthew Principle" applies. The principle refers to a verse in the Gospel of St. Matthew (13.12): "For whosoever hath, to him shall be given… but whosoever hath not, from him shall be taken away even what he hath." In other words, a person who has achieved material success can continue in old age to

contribute to the community through philanthropy or political influence, and a person who has achieved renown in science or the arts can continue to be active in later life by sitting on boards and commissions or through writings and lectures. Nevertheless, even the average person without much material or cultural capital can find innumerable opportunities for helping the community through volunteer work or more intense forms of personal involvement.

But it is unlikely that a child who has been reared with an exclusive emphasis on personal advancement will be motivated to turn to community action in later life. As Dr. Spock remarks: "I think that our children should be brought up not primarily to get ahead, not primarily to look for prestigious jobs and high income, but with the idea of serving the community and serving the world—even if they get into business." Benjamin Spock's own career serves as a good model of what he preaches: after retirement from teaching medicine at Western Reserve, he worked hard for the National Committee for a Sane Nuclear Policy out of his concern for the effects of nuclear fallout on children; then he ran for the presidency of the United States in an effort to implement the kind of policies he believed would lead to a healthier environment; and in his 80 s he is still involved in a variety of activities aimed at improving the quality of life for children and families. Like most persons who show concern for the welfare of the community in later life, Spock absorbed his values in early childhood. "I was brought up by a very moralistic mother," he remembers, "fiercely moralistic, you might say." And although as a young man he rebelled against those strict parental values and was motivated to achieve material success above all else, eventually the seeds planted in the early family environment came to fruition.

The sixth and final part that it is appropriate to play on the cultural stage in the later years of life is that of a *wise person.* Wisdom is a concept with many layers of meaning; here we shall define only some of its more salient attributes. In the first place, wisdom refers to the ability to get at the essence of problems; second, it involves holistic thinking rather than specialized knowledge; third, it refers to virtue or to behavior in line with the common good; and finally, it involves a serene acceptance of one's lot, the joyful performance of the practice of everyday life (Csikszentmihalyi and Rathunde 1990; Sternberg 1990). Throughout most of history, and especially during the hundreds of thousands of years before writing was invented and knowledge had to be passed down from the memory of elders to the memory of youth, what we now would call wisdom was a highly prized trait of the old.

This is no longer the case, however. While the production of new information has escalated geometrically in the past few centuries, the knowledge of the older cohorts has become increasingly obsolete. As a result, the younger generation is less likely to take seriously anything their elders say. Teenagers watch with incredulous disdain as their parents fumble with the VCR, cannot find their way through the Internet, and listen with bewildered incomprehension to the latest popular songs—how could these inept oldies have anything worthwhile to say?

The sociologist Elijah Anderson (1990) describes how, for instance, the link between the generations has been snapped in most African American neighborhoods in the United States. Young people tended to congregate on street corners around some of the wise elders—or "old heads"—who used to engage them in witty repartee dealing with moral tales of hard work and decency interspersed with practical information about jobs, good manners, and other "tricks of the trade." Nowadays, this essential step in socialization is getting increasingly rare, to the detriment of individual lives and the viability of the community as a whole.

Yet, wisdom does not become obsolete as rapidly as knowledge. We would not take very seriously the scientific ideas or factual information possessed by the ancient Greeks or Romans, whereas the reflections of Socrates or Seneca on the meaning of life are still state-of-the-art. In fact, as knowledge seems to be fragmenting itself in a fair imitation of the biblical Tower of Babel, the need for the qualities of wisdom are becoming more urgent than ever.

It is obvious, however, that wisdom is not simply a matter of age. A scatterbrained youngster will not turn automatically into a wise old person simply because he or she lives many years. What kind of early experiences predispose a person to be wise in old age? There is no systematic information that would answer such a question. But one might expect that a child who is brought up to value decontextualized thinking, specialization, expediency, self-centeredness, immediate gratification, and an exclusive reliance on extrinsic rewards will not be interested in wearing the mask of a wise person in old age. By contrast, if the early environment encourages empathy and a holistic way of thinking, integrity, responsibility, and sensitivity to intrinsic rewards and long-range goals, then interest in wisdom is more likely to develop. And the scant evidence suggests that these attitudes conducive to wisdom are usually learned in the immediate family from one's parents, or, perhaps more typically, from one of the parents.

In addition to these six ways of being a successful older person, it is important to repeat that *how* an individual experiences his or her life is as important as the particular masks he or she wears. A person whose behavior conforms to the highest expectations of the culture but who fails to enjoy the parts he or she plays cannot be considered to have attained an optimal old age. Therefore, one of the essential developmental tasks is to provide young people with the metaskill of turning neutral or adverse everyday situations into enjoyable experiences. In summary, one might say that the ideal of an older person is: *Someone fit of body and mind, who is curious and interested in life, and pursues a vocation with vigor; someone who is close to family and friends, is helpful and involved in the community, and concerned with making sense of the world; and who, in all of these endeavors, finds meaning and enjoyment.*

Given these assumptions about what constitutes optimal aging, it is now time to turn our attention to examining in greater detail what makes it possible to achieve these positive outcomes. We argue that a complex personality supports the ability to play these desirable roles, and then we turn to the childhood antecedents involved in the formation of psychological complexity.

Complexity and Development

We have said that a person is a human being who can speak and be understood, who can relate to other members of a community, and is able to fulfill the roles expected of an individual of a certain age and social position. The concept of the mask was introduced to emphasize that personhood involves playing appropriate roles on a cultural stage.

We have also seen that not all masks are valued equally in society. Therefore, we add here the notion of a *complex mask,* which distinguishes the kind of optimal developmental outcomes that human groups in general tend to consider the most desirable. The complexity of a mask, and thus the complexity of the person, depends upon the quality of the intrapsychic and interpersonal relationships a person is capable of enacting. Starting from a Bakhtinian perspective, Wertsch (1991) came to a similar conclusion when he said that the real, unique object of developmental psychology was to study "the processes whereby individuals master voices and patterns of privileging," because only then can we understand how persons can control and shape the forces impinging on them, and achieve a measure of emancipation from the determinism of biology and culture (p. 29). In the terms developed in this chapter, complexity is a measure of how well a person can take on *integrating and differentiating complex relationships,* including, but not exclusively, relationships with other persons. Thus, the concept of complexity makes it possible to construct a unified model of optimal development.

To grasp the function of relationships in the life course, it is helpful to draw upon Levinson's (1986) notion of the life structure. A life structure is the underlying pattern or design of a person's life; to understand development, one needs to understand the evolution of this pattern. In a manner similar to the distinction made earlier between persona and person, Levinson distinguished between personality structure and life structure with two questions: "What kind of person am I?" and "What is my life like now?" The latter question reveals the life structure because it discloses the relationships one has with others, broadly defined as actual persons, imagined figures, social groups or institutions, places, objects, and so on. He comments: "These relationships are the stuff [of which] our lives are made…. They are the vehicle by which we… participate, for better or worse, in the world around us" (p. 7).

The relationships that constitute the life structure are part of the two systems they connect (i.e., self and environment) and can only be understood as that which creates a link *between* them. The pattern of a life is not only revealed by these relationships, it *is* these relationships. Thus, if we equate the mask with a culturally prescribed role, and the person with the particular voice issuing through the mask, we might say that the essence of personhood is relationship, or more succinctly: persons are relationships. Consequently, as Lerner (1991) has argued, the basic process of development consists in changes in relationships between individuals and their multiple contexts.

What makes one relationship more complex than another? If the goal of personhood is participation in culture while developing unique potentialities, then a complex relationship is one that fosters the integration and differentiation of self and environment and thus allows the fullest and most intense levels of participation. This concept is similar to that of the optimal environment discussed by Magnusson and Stattin (chapter "The Ecology of Adolescent Activity and Experience", this Volume), which provides the effective stimulation that allows the individual to differentiate in unique ways (see Gottlieb, chapter "The Costs and Benefits of Consuming", this Volume). But to locate such an answer squarely within classical developmental theory, we shall explore the notion of complexity in terms made familiar by the early developmental literature. We might begin to look at it from a Piagetian perspective.

Piagetian Theory and Complex Relationships

A number of familiar concepts from Piaget's theory are helpful for understanding complexity. For instance, *equilibration* expresses a fundamental insight of Piaget: that development is an evolutionary process that exists "between" subject and object. While some theorists before him explained development from the side of the subject (e.g., through a priori structures, rationalism, or other nativist ideas), and others explained it from the side of the environment (e.g., association, positivism, or other nurture perspectives), Piaget tried to solve the riddle of development with an interactionist, open-systems model. Some may find this statement at odds with the too common interpretation of Piaget as a static stage theorist; this misunderstanding, however, arises from his multiple uses of the term *equilibrium.* For instance, it was sometimes used to refer to moment-to-moment adjustments of assimilation and accommodation, sometimes to the temporary accomplishments of the stages, and sometimes to the ideal endpoint of formal operations. It is at the first level of moment-to-moment interactions that Piaget is most clear that development is an ongoing relationship between self and environment: assimilation and accommodation are in constant search for equilibrium or balance, and acting in the world continually introduces disequilibrium that must be corrected with a dynamic equilibrium.

Despite the fact that maturationists and environmentalists both claim a part of his vision, the theory is more accurately understood as derived from an open-systems model of evolutionary biology: "It [Piaget's theory] does not place an energy system within us so much as it places us in a single energy system of all living things. Its primary attention, then, is not to shifts and changes in an internal equilibrium, but to an equilibrium in the world, between the progressively individuated self and the bigger life field, an interaction sculpted by both and constitutive of reality itself" (Kegan 1982, p. 43). Thus, equilibrium describes the state of the open system such that the self and environment are related in a way that is differentiated and integrated; in other words, it describes a state of

complexity. Assimilation and accommodation are two facets of a unitary and dynamic evolutionary process and must be understood together: as an organism differentiates, it moves, so to speak, through assimilation toward accommodation (i.e., from structure toward change); this movement calls for a reverse movement through accommodation toward assimilation (i.e., from change to structure) that integrates the organism with the environment in a new way.

By describing development in such general systems terms that focus on the relationship between self and environment, some thorny conceptual dichotomies become less troublesome (e.g., nature/nurture), and the person can be seen less as the *result* of the relational process (i.e., the more traditional interpretation), and more as the *process* of organizing information and creating meaning itself. A new burden, however, is then placed on the theorist, namely, to describe and measure the transitory state of equilibrium. There are at least two basic ways to address this problem: from the "inside," emphasizing how the self experiences the relational process; and from the "outside," looking at practical consequences. Likewise, Levinson (1986) suggested that the relationships of the life structure had an internal and an external reference. To evaluate the satisfactoriness of the life structure one could look at it internally in terms of *suitability,* or how the self can be lived out, passionately invested in, and expressed through the structure; or it could be evaluated in terms of *viability,* or what advantages versus disadvantages for adaptation resulted from the particular life structure.

Kegan (1982) noted that Piaget took the latter course, viewing the process descriptively from the outside, and focused on the successes in problem solving associated with different stages of cognitive development. Consequently, the approach ignored the assimilation/accommodation process from the participatory angle of the self. Presumably, this is one reason why the theory is often faulted for failing to provide a sufficient look at the role of emotion and motivation in development (Sternberg 1984). In fairness to Piaget, however, there were larger historical reasons that led many psychologists to ignore the internal reference. Aside from a few existential and phenomenological approaches, these participatory questions have seldom been raised in the field of developmental psychology; when they have, they have often lacked theoretical and methodological rigor to allow intersubjective verification.

In summary, then, Piagetian theory is helpful for linking the notion of complexity to foundational ideas in the developmental literature; but for several reasons it does not suffice for the purposes of this chapter. The theory tells us little about how the relational process between self and environment is *experienced by the self,* thus it tells us little about what—in human terms—motivates development. The notions of assimilation, accommodation, and equilibration, while important for locating the action of development in the relation between self and environment, are notoriously vague as concepts that can be measured and studied; they therefore have limited utility. If, however, a framework of internal reference is adopted, new research opportunities arise. For instance, if equilibrium indicates a complex relationship that is fully involving, then it becomes possible to look at development from a perspective that emphasizes full involvement as a measurable

criterion of the self-environment negotiation process. Much can be learned about this process, we believe, by adopting a phenomenological perspective that focuses on the experience of self-environment relations. For instance, what does a complex relationship feel like? How can relationships that are too one-sided—too integrated or too differentiated—be recognized phenomenologically?

Answers to the above questions were alluded to by Piaget in concepts such as *functional pleasure* and in brief references to intrinsic motivation. Unfortunately, he never developed these ideas in much detail. For instance, Piaget observed that infants laughed at their own power, tried to make interesting sights last, and manifested enjoyment (i.e., functional pleasure) when acting competently. Such observations were short-lived and limited to the early sensorimotor stages, however, as he turned his attention to the external manifestations of successful problem solving associated with higher stages of cognitive development. In so doing, a fruitful course of investigation was abandoned, one that might have added significant insights about the search for equilibration, and the enjoyment and intrinsic motivation associated with it.

To say the same thing more directly, the claim here is that complex relationships are experienced by the self as optimally rewarding; to the extent that Piaget was correct in asserting that the search for equilibration energized human development, it is accurate to say that development is also motivated by the search for optimal experience. It is through monitoring such experiences that we can learn to recognize when relationships are complex and when they are too differentiated or too integrated (having overemphasized either assimilation or accommodation). And to the extent that the person is defined less as a static entity and more as a relational process, then a theory of optimal experience becomes an important link to a fuller understanding of the development of the person.

Optimal Experience and Development: Some Previous Perspectives

Before discussing contemporary theories, it is worth mentioning a few of the early proponents of the view that optimal experiences are closely linked with the full development of the person. Although many thinkers could be mentioned here, going as far back as MacIntyre (1984), we have selected three more recent authors whose insights are relevant: Friedrich Nietzsche, Abraham Maslow, and Carl Rogers. Their views are linked through an idea they shared: *love of fate*. All three believed that love of fate was *the* mark of distinction for the fully developed person, whether that person was called "overman" by Nietzsche, "self-actualizing" by Maslow, or "fully functioning" by Rogers (1969); and all of them depicted the love of fate as a deeply rewarding synchrony between self and environment.

What does it mean to love one's fate? For Nietzsche it meant the affirmation of life through a full acceptance of its circumstances. Despite hardship or obstacle, or perhaps more accurately, because of them, one would not wish for one's life to unfold in any other way. This is so because the process of overcoming obstacles provides the opportunities through which the person is created. *Amor fati,* or love of fate, is a central concept in Nietzsche's philosophy: "My formula for greatness in a human being is amor fati: that one wants nothing to be different, not forward, not backward, not in all eternity…. Not merely bear what is necessary… but love it" (1968, p. 714). The fully alive person (i.e., the *over* man) is not content with just surviving and adapting, but is intent upon transcending himself or herself. Such experiences of transcendence provided his deepest motivation: "I want to learn more and more to see as beautiful what is necessary in things; then I shall be one of those who make things beautiful" (1974, p. 223).

Maslow's (1971) studies of self-actualization and peak experiences led him to a similar conclusion. The healthy person is not motivated just by deficits, simple endurance in life, or by the survival of self or offspring, but also by growth. Based on his observations and interviews with individuals he considered to be self-actualizing, including creative artists and scientists, he concluded that the processes of growth were often rewarded with fulfilling peak experiences. These experiences coincided with a synchronous relationship between self and environment; he referred to this synchrony as a balance of "inner requiredness" with "outer requiredness," or "I want" with "I must." Especially true of self-actualizing persons, during such experiences "one freely, happily, and wholeheartedly embraces one's determinants. One chooses and wills one's fate" (p. 325).

Rogers (1969) endorsed a very similar perspective. He comments about the fully functioning person: "He wills or chooses to follow the course of action which is the most economical vector in relation to all the internal and external stimuli because it is that behavior which will be the most deeply satisfying" (p. 294). As a result, he continues, "The fully functioning person… not only experiences, but utilizes, the most absolute freedom when he spontaneously, freely, and voluntarily chooses and wills that which is absolutely determined" (p. 295). Thus, as with Nietzsche and Maslow, a love of fate corresponds to an inner-outer synchrony that evokes a deeply rewarding experience. And like both of the other thinkers, Rogers (1959) believed that the person was not satisfied with mere survival, but was instead motivated to expand and grow: "The inherent tendency of the organism is to develop all its capacities in ways which serve to maintain or enhance the organism. It involves not only what Maslow terms 'deficiency needs'… [but also] expansions in terms of growth…. Life processes do not merely tend to preserve life, but transcend the momentary status quo of the organism, expanding itself continually and imposing its autonomous determination upon an ever-increasing realm of events" (p. 196).

Love of fate, then, reveals a complex relationship: a relational synchrony of self with environment; as such, it is the mark of distinction of the developing person. It is deeply rewarding because it coincides with the most "economical vector"

between inner and outer stimuli.[2] Most importantly, it is an experience that confirms, manifests, and accompanies what the organism wants most: to develop and to grow. Such complex relationships maximize being through the differentiation and integration of the person which allows the fullest expression of life and energy. In Piagetian terms, to grow means that a new equilibrium has been attained, one that is "higher" in the sense of being more synchronous with reality (i.e., as formal operations are more attuned to reality than concrete operations). What is added here to that perspective is the internal reference, the interior psychological correlate to moments of growth, or their intrinsically motivating character.

Flow Theory and Complex Relationships

Contemporary theories of intrinsic motivation continue in this tradition of thought. For instance, flow theory (Csikszentmihalyi 1975, 1990, 1993) describes a prototypical experience of intrinsic motivation referred to as *a flow experience*. Flow is a deeply involving and enjoyable experience that has been described by a variety of different respondents, in a variety of cultures, in strikingly similar ways (Csikszentmihalyi and Csikszentmihalyi 1988). Athletes refer to it as being "in the zone," poets as being visited by the muse.

In flow, a person is fully concentrated on the task at hand. There is a feeling that action and awareness merge in a single beam of focused consciousness. In flow, it is very clear what needs to be done from one moment to the next; goals are clearly ordered and sequenced. One also knows immediately how well one is doing: feedback is unambiguous. The tennis player knows whether the ball was hit well, the violinist hears whether the note just played was right or wrong. In flow, a person loses self-consciousness; the vulnerable ego disappears. In George Herbert Mead's terms, there is only "I" without a "me" to worry about. The sense of time becomes distorted to fit the experience; hours seem to pass by in minutes. When these dimensions of experience are present, one is willing to do what makes these feelings possible for their own sake, without expecting extrinsic rewards. The poet enjoys the experience of writing, the bond trader enjoys beating the market, and both will continue doing these things because they are enjoyable— even in the absence of the rewards of fame and wealth.

Finally, and most importantly, flow begins to be experienced when there is a fit between the *skills* of the self and the *challenges* afforded by the environment. For example, we cannot enjoy a tennis game if our opponent is either much better or

[2] It is worth pointing out again that when the person is defined relationally, as in this chapter, it can be misleading to fall into the familiar use in the terms *subject* versus *object*, inner versus *outer*, and so on. This terminology tends to isolate the person from the world, which is not our intention. On the contrary, it is more consistent with our perspective to say that the "location" of the person is neither inner nor outer, or, perhaps better, is both at once.

much worse than we are; only a game with a well-matched opponent is likely to be enjoyable. We don't enjoy reading a novel in which plot and characters are too difficult to visualize, nor one that is too obvious and predictable; we enjoy instead the text that fits our imaginative powers. It is this aspect of enjoyment that is most relevant to the relational synchrony that lies at the heart of optimal personhood.

The experience of flow marks an achieved balance of arousal-increasing and arousal-decreasing processes. The flow model describes this balance in terms of the fit between perceived challenges and skills: an activity wherein challenges predominate increases arousal; an activity wherein skills predominate reduces arousal. Thus, a synchrony of challenges and skills permits a state of deep involvement, while the pitfalls of either over- or underarousal (i.e., anxiety or boredom) are avoided. In this sense, flow seems to represent the subjective dimension of that "goodness of fit" between temperament and environment that underlies several developmental perspectives (e.g., Lerner and Lerner 1987; Thomas and Chess 1977).

In fact, it could be argued that flow is likely to be experienced when an individual is fully functioning relative to the developmental opportunities that a given stage provides. For instance, in terms of the Eriksonian stages, an infant at the first stage whose only opportunity for action is feeding itself and whose only skill is to suck milk will be in flow when at the nipple. As the opportunities for action in the physical and social environment grow, so must the child's abilities to act increase if the child is to continue to experience enjoyment.

Anxiety and boredom are aversive phenomenological states that result from a disequilibrium in the momentary fit between skills and challenges or self and environment. When challenges are too high relative to skills, the asynchronous relationship leads to anxiety because one feels overwhelmed, out of control, threatened by a loss of integrity and order. In contrast, when skills are too high for the given challenges, the fit between self and environment is too easy and comfortable, resulting in the loss of spontaneity and novelty and therefore a decrease in the sense of focus, urgency, curiosity, adventure, and so on.

The balance of skills and challenges can also be described in Piagetian terms. An assimilative mode of processing indicates the existence of an organized, preexisting structure of information. That structure makes the processing of new information more automatic because it can be organized by the existing structure. The notion of "skills" suggests an analogous process; a skill is a practiced response, one that is habitual and automatic. A skilled pianist, therefore, primarily relies on an assimilative mode when reading an easy piece of music. On the other hand, if the challenge of reading the score is just beyond the skills of the pianist, an accommodative mode predominates. Accommodation is a more effortful response to novelty (Block 1982). In attentional terms, it uses more controlled, linear processes, rather than automatic and global processes, as does assimilation (Schneider and Shiffrin 1977). To say, then, that a flow experience is more likely when skills and challenges are in balance, is to say that flow is more likely when assimilation and accommodation are in equilibrium. Other ways to describe the

experience are as undivided attention, the combination of controlled and automatic processes, or the joining of effort and habit (Rathunde 1993).

Piaget (1962, see pp. 147–150) recognized that when assimilation dominates accommodation the fit between self and environment is too rigid and one-sided. In an *over-assimilative* mode, the self habitually perceives the environment subject to its own preconceptions, and consequently objectivity is diminished (Kegan 1982). Overassimilation is equivalent to an imbalance of skills over challenges, and it feels like boredom. When bored, one is too "subjective," too habitual, and closed to new opportunities for action. Conversely, when accommodation dominates assimilation, or when novelty overwhelms the processing capacity of a preexisting structure, the self is placed in a position that is the opposite of embeddedness. In such circumstances, the self is unhinged and oriented outside of itself; it is so decentered toward the uncertainty in the environment that the possibility for feelings of relatedness, connection, and meaning are diminished. *Overaccommodation,* then, is equivalent to the imbalance of challenges over skills, and it is experienced as anxiety. When anxious, one feels at the mercy of environmental circumstances that are beyond one's control, and thus blinded by the excessive stimulation to ways of making sense of the situation.

When skills and challenges are in equilibrium, action is fully centered on the relationship between self and environment. The skilled pianist who performs a challenging score is drawn into a more complex and involving relationship. The automaticity of existing skills provides confidence, structure, integrity, and a foundation from which the new material can be reached; yet the reach is not easy, and the novelty of the score demands careful attention. It is just such a combination that requires full attention—resources brought to bear through habits of "chunking" the information, and resources mustered through effort and step-by-step attention to detail. And this full attention is experienced as a feeling of flow, of being caught up in a single energy system that unites self and environment. Motivation to continue the activity becomes intrinsic—not in the mistaken sense of "in" the self, but rather "in" the self-environment relationship.

Yet another way to look at the full involvement of flow is in terms of the combination of positive affect and heightened concentration. Some activities may evoke positive affect, but will soon be experienced as frivolous if they lack focus and the need for concentration. On the other hand, some activities begin with intense concentration, but are soon experienced as oppressive and alienating because they are devoid of pleasant feelings. Dewey (1913) has called the former experiences "fooling" and the latter "drudgery." In contrast, he described optimal experiences as affectively and cognitively engaging, providing both a sense of playfulness and spontaneity, as well as a corresponding seriousness and focus on goals. For some individuals, work is drudgery because serious concentration is not accompanied by positive emotion, and leisure is fooling because good moods cannot be sustained due to a lack of focus. For other, more fortunate people, work and leisure are both thoroughly enjoyed, and in fact indistinguishable. By splitting positive affect and heightened concentration, the former individuals experience what may be thought of as "divided" interest; the latter ones, through the

synchrony of affect and cognition, experience the fullness of "undivided" interest or *serious play* (see also Rathunde 1993, 1995).

The implications of an affective-cognitive synchrony for the quality of experience can also be described using the psychoanalytic constructs of *primary* and *secondary process* thinking. These two processes are often dichotomized in an either/or fashion: primary process is identified with the pleasure principle and with dreams, myth, emotional thinking, fantasy, poetic feeling, and so on; secondary process, in contrast, is identified with the reality principle and thus with reason, logic, science, intellect, abstract thought, and so on. A severe split between these two processes is tantamount to pathology. In Freudian terms, relatively uninhibited primary process thought suggests the dominance of the id over and against the ego and superego, whereas the dominance of secondary thought processes is suggestive of the repressive control of the superego over and above the ego and id. A healthy ego, at least to a greater extent than an unhealthy one, is able to synchronize id and superego, primary with secondary process thought, therefore achieving greater self-regulation, freedom, and health. Several psychoanalytic thinkers have also associated such a synchrony with creativity (Jung 1946; Kris 1952). The implication here is that healthy ego development is presumably related to negotiating complex relationships and is therefore associated more with optimal experience.

Finally, that optimal experiences synchronize affective and cognitive modes is supported by the descriptions of flow, peak experiences, and the emergent experiences of fully functioning persons. Respondents describe flow as an enjoyable merging of action and awareness in that actions follow each other spontaneously and unselfconsciously, yet there remains an intense and careful monitoring of feedback in relation to one's goals. Maslow (1971) has commented about peak experiences: "We have found that peak experience contains two components—an emotional one of ecstasy and an intellectual one of illumination. Both need to be present simultaneously" (p. 184). Finally, and in a similar vein, Rogers (1969) described the fully functioning person as both a *participant* and an *observer* of an emergent experience: "The sensation is that of floating with a complex stream of experience, with the fascinating possibility of trying to comprehend its ever-changing complexity" (p. 285). Thus, in all of these descriptions there is a component of automatic and controlled attention, a component of primary process thinking that is immediate, and an aspect of secondary process thinking that is monitoring the environment. Such complexity, we believe, like the contrasts of dark and light in a painting, are what makes such experiences interesting and vital.

Flow and Development

Just as we cannot step in the same river twice, we cannot enjoy the same activity with the same intensity more than once. To continue providing optimal experiences, flow activities must constantly be *re-created.* It is this fact that makes the

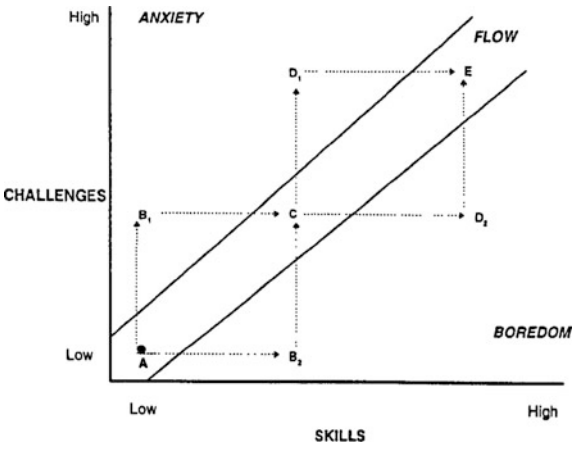

Fig. 2.1 The dynamics of flow. **a**, **c**, and **e** are enjoyable states of equilibrium of increasing complexity. B_1 and D_1 are states of anxiety that require learning new skills for a person to return to flow. B_2 and D_2 are states of boredom that require new challenges for a return to flow

flow model a developmental model. As Piaget also observed, disequilibrium between the processes of assimilation and accommodation is inevitable and needs to be continually addressed. In our phenomenological perspective, disequilibrium is signaled by boredom and anxiety—two inevitable life experiences. In the simplest terms, one escapes boredom by raising challenges and overcomes anxiety by raising skills. It is through this perpetual dialectical process that development proceeds; and it proceeds in the direction of greater complexity because optimal experiences cannot be recaptured through a regression of skills and challenges, but only through their progression (Csikszentmihalyi 1990; Csikszentmihalyi and Rathunde 1993).[3] Figure 2.1 shows how the raising of skills and challenges has been depicted in previous discussions of the flow model. To reenter the "flow channel" from states of boredom or anxiety, challenges and skills must be raised appropriately. In other words, flow can proceed from boredom or from anxiety. Once "inside" the experience, there are common features to flow, but seen in the broader context of before and after, the experiences are quite different. For instance, relief from boredom is a process of *finding* something exciting. Boredom initiates a process of searching for something to do; as interest and curiosity draw the self out of its shell, boredom wanes, and experience becomes more intrinsically rewarding. In contrast, relief from anxiety is more like *solving* a problem. Anxiety initiates a process that tries to resolve a dilemma; with increasing success and a growing sense of resolution, order, or closure, anxiety dissipates, attention becomes more focused, and the quality of experience improves.

[3] Our focus here remains on immediate subjective experience, but it is possible to adopt other time frames and perceive the same dialectical tension. In other words, one may overcome the anxiety of an entire week, month, or year by finding a way to build new skills. As mentioned earlier, the same is true of the notion of equilibrium; that is , it can refer to immediate experience or stages that characterize larger periods of time.

Similar to the movement away from boredom, the movement from assimilation toward accommodation involves problem finding in the sense of pushing the limits of an existing information structure. When assimilation is joined by an emergent sense of accommodation, but not overwhelmed by it, experience is optimal. For instance, an individual who has just learned to ski discovers new challenges by testing the limits of his or her skills on new hills; these challenges, if not overwhelming, intensify the skier's experience because they evoke greater concentration and require quicker adjustment. When, however, it becomes clear that a particular challenge is beyond reach, the skier feels out of control and anxiety sets in. In this instance, accommodation that moves toward assimilation is a problem-solving process that rebuilds a new structure. Perhaps the skier needed to learn a more effective way to turn to control the speed of descent; as the first clumsy actions become more practiced and second nature, anxiety lessens, attention is withdrawn from the self-consciousness of "forced" turns, and, at least until the new turns become too automatic, the experience of skiing is again exhilarating.

Apter (1989) has called such changes in the direction of arousal *reversals.* In his reversal theory, he calls the former problem-finding mode *paratelic* and describes it as an arousal-increasing mode wherein attention is focused on the here and now, and more on means as opposed to ends. In contrast, the latter problem-solving mode is referred to as *telic.* In this mode, attention is more focused on the goals of an activity, there is a future-time orientation, and the activity moves toward reducing arousal. In everyday language, the paratelic mode is more spontaneous, fun, and playful; the telic mode is more serious and worklike. The rewards of a paratelic mode are those resulting from the movement from boredom to optimal arousal; in contrast, a telic mode finds optimal rewards by moving from anxiety back to optimal arousal. Consistent with the perspective here, optimal experience is simultaneously paratelic and telic.

Complex Relationships and the Complex Person

What qualities facilitate the kinds of complex relationships, optimal experiences, and trajectories of growth that have been outlined above? Such a question is not intended to change the relational focus in favor of more traditional psychological conceptions of personality traits or characteristics. However, to discuss the person often requires a way of speaking about qualities or characteristics "as if" they were contained in the person. Despite the pitfalls of such language, the qualities discussed can still be thought of in relational terms; and to the extent that they are depicted as relatively stable "traits" of persons, they can also be conceived as stable ways of relating to the environment.

Bronfenbrenner (1992), chapter "The Relationship Between Identity and Intimacy: A Longitudinal Study with Artists", this Volume) has recently discussed such personal attributes in terms of their relational potentials and collectively refers to them as *develop-mentally instigative characteristics.* Such characteristics

have two features. The first refers to qualities that encourage or discourage certain reactions from the environment; for instance, a baby acts as a stimulus to others by being either fussy or happy, and calls forth certain corresponding reactions. A more important developmental influence and, according to Bronfenbrenner, one that is much ignored and in need of study by developmentalists is *developmentally structuring characteristics* that involve an active, selective orientation toward the environment. About such instigative attributes he comments: "When they are manifested over time in particular settings, [they] tend to evoke complementary patterns of continuing developmental feedback, creating more complex developmental trajectories that exhibit continuity through time. The result is a person-specific repertoire of evolving… dispositions that continues to be distinguishable over the life course, and hence constitutes what we recognize over the years as the person's individual personality" (1992, pp. 219–220).

There are several examples of developmentally instigative qualities explored in the literature that are relevant to optimal experience. For instance, Block (1982) has discussed how ego resiliency is related to the ability to move through the dialectic of assimilation and accommodation. When novelty overwhelms a particular schema, accommodation is needed to restore psychic equilibrium. However, the movement through assimilation to accommodation may, at first, prolong and intensify an anxious state until progress is made toward reorganizing the structure. If a person is unable to muster the effort needed to push through anxiety, he or she may persist with failed assimilative efforts (i.e., perseveration, fixation, and so on), or might selectively ignore the challenge. An ego-resilient person is better able to keep the two modes in equilibrium and therefore avoid the particular dangers of Overassimilation and overaccommodation by being flexible in life-changing conditions. Such a person is capable of spontaneity under conditions of overassimilation, and capable of self-direction and organization under conditions of overaccommodation (Block 1982; Block and Block 1980).

Bandura's (1977) notion of *self-efficacy* also suggests a relational quality that is relevant for the dialectic of optimal experience. For instance, persons with high self-efficacy *slightly overestimate* their ability to master challenges. This "distortion" has the effect of inducing persons to select challenges that are slightly beyond their current capacities. In other words, it induces the confidence to take a risk. Because the selected challenge is not unrealistic, however, the person is able to master it, thus reinforcing and strengthening the feeling of self-efficacy. The same could be said about the positive feedback loop that coincides with high self-esteem. After experiencing flow, self-esteem increases, and people who experience flow more often (that is, who spend more time in high-challenge, high-skill situations) report higher levels of self-esteem (Adlai-Gail 1994; Wells 1988).

Ford and Lerner's (1992) description of the competent person as possessing *flexible* self-regulation is also relevant here: "A competent person can modify effectively his or her own behavior and/or the features of the social situation in which he or she is engaged…. People can, for instance, change their topic of conversation if they find they are boring or upsetting others; or if they are bored or upset by what is being said, they can turn the topic of conversation round to more

pleasant topics, or terminate it…. Such competency—such efficient self-regulation—is an instance of how one may act as a producer of their own development" (p. 85).

Such a competent or flexible person is, of course, not free from the biological and environmental constraints that bind everyone else. We are all limited by particular inherited and learned characteristics, and most settings impose social and physical demands that cannot be ignored. Nevertheless, it is possible to negotiate a *goodness of fit* with the setting. According to Ford and Lerner (1992), flexible persons are better able to (a) evaluate the challenges facing them and their abilities or skills to respond; (b) select and gain access to those contexts where there is a high probability of a good fit, and avoid those contexts where there is not; and, as in the earlier example of a conversation; (c) either change themselves to find a better fit (e.g., change their own pattern of response in a conversation—or accommodate) or try to change the context itself (e.g., try to alter others' topics of conversation—or assimilate). A competency in self-regulation thus allows us to be more active shapers of our development.

Far from reducing an ecological and interactionist perspective to the side of personality, the above remarks reinforce the notion that the self-environment relationship is the primary factor in development. Instigative or structuring qualities, though, set in motion *interaction styles* that are sustained by the accumulation of their own consequences. In other words, results from certain actions instigated by the individual produce a stream of feedback that sustains the trajectory of growth. It is not that the person remains the same in every environment; rather, it is that there is *consistency in the way that a person varies behavior as a function of the environment.* In other words, developmentally instigative characteristics produce a continuity in the way behavior is changed. In this chapter we are especially interested in the continuity of response that directs the person toward self-environment equilibrium and optimal experience.

An example of how such consistency in change might operate is helpful. In overly challenging situations, a person might recognize that arousal reduction and skill building are the appropriate course of action; in times of boredom, the person might seek to increase arousal by seeking higher challenges. Such a person, who at one moment manifests a conservative attitude of perseverance and at another, a confidence aligned with taking risks, might seem to the outside observer to be inconsistent, contradictory, and at the mercy of environmental influences. On the contrary, from the internal reference of subjective experience, such flexibility or complexity of response displays consistency. Only such a person is capable of making choices that move predictably in the direction of optimal experience.

In this chapter, and in previous work (Csikszentmihalyi 1996; Csikszentmihalyi and Rathunde 1993), persons that exhibit such active-interactive orientations have been referred to as *complex persons.* A complex person is one who has *the self-regulative capacity to move toward optimal experiences by negotiating a better fit or synchrony of self with environment.* Traditional conceptions of personality that claim a stability of response, regardless of environmental circumstances, have been shown to be lacking (Barker 1950; Mischel 1968). We do not dispute the fact

that the social and physical demands of different contexts will evoke different behaviors. Traditional conceptions of personality, however, fail to look for *consistency within the change,* or the consistency in the ways that a person varies his or her behavior as a function of the setting (for further discussion of this point, see Cairns and Hood 1983; Sroufe 1979).

Physical scientists describing complex systems are also aware of this phenomenon of consistency in change; they call it emergent self-organization (e.g., Prigogine 1980). Waldrop (1992) comments:

> Self-organizing systems are adaptive, in that they don't just passively respond to events the way a rock might roll around in an earthquake. They actively try to turn whatever happens to their advantage…. Complex systems have somehow acquired the ability to bring order and chaos into a special kind of balance. This balance point—often called *the edge of chaos*—is where the components of a system never quite lock into place, and yet never quite dissolve into turbulence, either. The edge of chaos is where life has enough stability to sustain itself and enough creativity to deserve the name of life…. The edge of chaos is the constantly shifting battle zone between stagnation and anarchy, the one place where a complex system can be spontaneous, adaptive, and alive. (pp. 11–12)

Although these words were written to describe the beauty of fractals—the patterned turbulence of rivers, weather, and other natural phenomena—they apply equally to psychological systems. This edge of chaos (and conversely, the "edge of order") has been described here as equilibrium, balance, and synchrony. Optimal development also involves such a predictable unpredictability, and an unpredictable predictability. Note the similarities between the following passage from Roger's (1969) description of the fully functioning person, and the above description of complex physical systems:

> It should therefore be clear that this person will seem to himself to be dependable but not specifically predictable. If he is entering a new situation with an authority figure, for example, he cannot predict what his behavior will be. It is contingent upon the behavior of this authority figure, and his own immediate reactions, desires, etc. He can feel confident that he will behave appropriately, but he has no knowledge in advance of what he will do…. It is the maladjusted person whose behavior can be specifically predicted, and some loss of predictability should be evident in every increase in openness to experience and existential living. In the maladjusted person, behavior is predictable because it is rigidly patterned. If such a person has learned a pattern of hostile reaction to authority… and if because of this he denies or distorts any experience which should supply contradictory evidence, *then* his behavior is specifically predictable…. I am suggesting that as the individual approaches the optimum of complete functioning his behavior, though always lawful and determined, becomes more difficult to predict. (pp. 292–293)

The behavior is lawful, according to Rogers, because the fully functioning person will attempt to select the best path toward growth and the synchrony of inner and outer demands. But this choice, in any given situation, cannot be known in advance, and that is why it is misleading to think of the person in anything but relational terms. Our concept of the complex person tries to avoid static definitions by viewing the person in terms of the dialectical process of integrating and differentiating self and environment. As Kegan (1982) observes, the person is "an ever progressive motion engaged in giving itself a new form." Here, in contrast to

traditional approaches that see the person as a result of this process, the focus is placed not on what a person does, but the doing that a person is. Such an approach distinguishes the notion of person from "self" (i.e., a more psychological, subject-oriented perspective) and from "role" (i.e., a more sociological, object-based perspective). It also, we believe, will facilitate the recognition of similarities in various complex relationships across the life course.

Examples of Complexity in Later Life

The optimal developmental outcomes described in the previous section are predicated on the achievement of psychological complexity. Complexity describes dialectical polarities in the person that enable him or her to continually negotiate, and renegotiate, an optimally rewarding self-environment fit. On the most general level, these polarities involve structure *breaking* and *building* and problem *finding* and *solving*. A person with such potentialities is presumably better able to "instigate" development by flexibly working at the edges of order and novelty, without letting one or the other dominate.

The dialectical model helps to explain why such polarities are related to the development of optimal personhood. To move from boredom to flow, and from anxiety to flow, structure-breaking and structure-building qualities are needed. In the domain of social relations, agency represents the former and communion the latter (Bakan 1966; Block 1973). An enjoyable conversation requires participants to assert differing points of view, but it also requires the coordination of such views for common understandings. The particular qualities that represent complexity depend upon the particular domain of activity, but in general it can be stated that phases of structure breaking require a sense of integrity and order that coincide with the confidence to take risks, test one's limits, be open to new challenges, and seek the edge of chaos. Conversely, structure-building phases require a "foundation" that is ripe with diversity, novelty, and awareness, that coincides with determination, diligence, and patience to seek the edge of order. One goal of this chapter is to summarize the findings from a variety of studies, conducted by the authors and by others, that help to clarify how these abstract notions are translated into the lives of actual persons.

Therefore, we turn now to illustrate more concretely how complexity is manifested by some individuals in later life. While there are a number of dialectical models of adult thinking that are conceptually similar to our notion of complexity, there is still a need for more specificity in regard to how these dialectical thought processes are *actually manifested* by real persons. Recently, we had the opportunity to gather information relevant to this underexplored issue from a pool of interviews collected at the University of Chicago about creativity in later life. The 100 respondents in this study were individuals who had played successfully their part on the cultural stage (13 had been awarded Nobel prizes, and the rest had achieved comparable renown), but their lives can be used as examples of success

in a broader sense, as modeling optimal developmental trajectories. In the interviews, they talked about many factors related to their impressive accomplishments, but more important, their words gave excellent descriptions of how complexity is enacted in actual life situations. We draw from these interviews to make more concrete the theoretical ideas that have been presented thus far. These examples of later-life complexity, in turn, set the stage for a discussion of some connections that can be made to current developmental research.

Individuals who have been recognized for their eminent creativity may seem inappropriate for illustrating complexity. Creativity is often identified with one part of the developmental dialectic we have described, namely, the part associated with the escape from accommodation, with breaking structures, finding problems, and so on. It is true that creativity is most often identified with such differentiating responses; but that is probably because many creativity studies have set out to measure creativity in this way. However, creativity sustained over a great length of time and that results in eminent achievement is not something that rests upon divergent thinking alone; convergent, integrative thinking is equally important.

A few perspectives on creativity have recognized a bipolar psychological process that is characterized by an affective immediacy related to divergent thinking, along with convergence achieved through cognitive detachment and objectivity.[4] For instance, Getzels (1975) has commented: "Despite the self-evident need for strenuous effort… creative thinking entails, at least in some degree, surrender to freely rising playfulness" (p. 332). Einstein's account of his creative process suggested a similar duality (see Hadamard 1954, p. 142): a phase of "associative" play and a more "laborious" phase requiring logical coherence. Gardner (1993, chapter "Intrinsic Motivation and Effective Teaching", this Volume) has recently suggested that a playful, childlike quality survives alongside the mature intellect of siminal creators (see also Simonton 1984). Barron (1969) described creativity as a synchrony of immediacy and detachment in a chapter entitled "Cycles of Innocence and Experience." The title is drawn from the poetry of William Blake and contrasts "prelogical" thought that is concrete, spontaneous, and free of abstraction (i.e., innocence) with thought that utilizes "reason" and therefore has a logical structure (i.e., experience).

Why is creativity associated with both immediacy and detachment? Our model suggests that qualities such as curiosity, spontaneity, and divergent thinking move toward the subjective rewards of structure breaking; conversely, qualities that enhance logic, structure, and relatedness move toward the rewards of structure building. Barron's (1969) description of creativity said much the same thing, without the emphasis on subjective experience, "In the creative process there is an incessant dialectic and an essential tension between two seemingly opposed

[4] Although the focus here, as in much of the chapter, is on psychological processes, creativity cannot be reduced to this level.

dispositional tendencies: the tendency towards structuring and integration and the tendency towards disruption of structure and diffusion…. The task is to avoid sacrificing one possibility to the other. We must be able to use discipline to gain greater freedom… tolerate diffusion, and even occasionally invite it, in order to achieve a more complex integration (pp. 177–179).

Seven Dimensions of Complexity

We might summarize the traits involved in optimal development by concentrating on seven polar dimensions. This number is somewhat arbitrary and could be expanded or reduced depending upon the amount of detail we wish to observe.

A central polarity that surfaced in the University of Chicago study was the combination of *agency* and *communion,* that is, the drive toward both independence and interdependence (see Bakan 1966). This is often seen as an "androgynous" trait, in that it combines elements traditionally associated with both males and females. Why has androgyny been linked to positive developmental outcomes (Baumrind 1989), as well as to eminent achievement (Spence and Helmreich 1978)? Our perspective suggests that both characteristics play a role in negotiating optimal experience through structure changing and building; therefore, persons with a predominance of either attribute (i.e., a highly sex-typed individual) are at a disadvantage, at least in domains of activity where these qualities are especially important for competent performance.

One such domain is interpersonal relations or, more concretely, the act of communicating. Skills of communication are essential for playing one's role on the cultural stage, no matter what that role is. It is equally central to business management (Leavitt et al. 1989), to the emotional well-being of families (Larson and Richards 1994), and to political leadership (Gardner 1995; Kouzes and Posner 1995).

For instance, students who cannot speak their mind to a teacher (agency) or listen to what that teacher has to say (communion) will not get the most out of the relationship; neither will the teacher. The teacher or student, therefore, who is capable of agency and communion in interpersonal communication—"speaking" as an individual and "listening" in a posture of openness to the other—would presumably be at an advantage for learning from such communication and for experiencing optimal rewards in the process. Charles Cooley (1961), though not discussing androgyny or optimal experience, said much the same thing about the optimally healthy person. After suggesting that males were, in general, less socially impressible and more inclined to an aggressive, solitary frame of mind than females, he commented: "So long as a character is open and capable of growth it retains… impressibility, which is not weakness unless it swamps the assimilating and organizing faculty. I know men whose character is proof of stable

and aggressive character who have an almost feminine sensitiveness regarding their seeming to others. Indeed, if one sees a man whose attitude towards others is always assertive, never receptive, he may be confident that man will never go far, because he will never learn much. In character, as in every phase of life, health requires a just union of stability with plasticity" (p. 828).

In our interviews with persons who had successfully negotiated adult roles, the combination of agency and communion was often evident. For instance, the path-breaking historian John Hope Franklin told about a memorable teaching experience that involved taking a graduate seminar to North Carolina to study the Reconstruction period. The class was exploring the idea advanced by a book claiming that segregation, and the Jim Crow laws of the 1880s–1890s, were relatively new and therefore not "sanctified by age." When asking one of the students how he was progressing, Franklin recalled:

> His eyes were just sparkling…. He had found practices, as well as laws, segregating blacks and whites from much earlier…. And so he was saying that [the author's] thesis was collapsing. That was an overstatement to be sure. He was overly enthusiastic, but he was excited, and I got excited about a finding like that…. of course, [the author] had made some exceptions… and this [the student's findings] fell, in part, in the excepted category. But it doesn't detract from the fact that he was excited. And I was excited because he was excited, you see?

In the anecdote, Franklin reveals subtle and complex social skills. He listens to his student with an attitude of acceptance and shared enthusiasm, without, for the moment, judging or correcting his student's overly enthusiastic response. By being unobtrusive, receptive, and patient—in other words, by manifesting some of the key qualities of communion—Franklin was facilitating his student's agency and joyful discovery. Although aware that the student was overly enthusiastic, and somewhat in error about the facts, Franklin decided that the joyful moment was better left alone because the student would need to draw on that excitement to complete the hard work that lay ahead. Franklin continued:

> Those students who will do the long haul are always willing to put the time and attention to the solution that the problem requires; one has to continue to be patient…. And that means that the student can't fudge or cheat or stretch his materials. He's got to stick with what the findings are. In my teaching I always give examples of that sort of thing among reputable historians. Not that I'm trying to debunk or anything like that, but I will point to a passage of widely and highly respected work and indicate to them just the way in which this particular historian misrepresented, and in some instances, prevaricated about the facts. I go back and show them what the facts were. Those are things I think are important.

Thus, the student's excitement stands, for the moment, but it will not stand in the way of the facts. Eventually, through more assertive episodes of instruction, Franklin demands that students coordinate their affectively charged insights with the careful work that distinguishes the scholar. In this way, Franklin balances communion and agency: sometimes he listens to students to support their individuality, but at other times he speaks from a position of authority so that students must adopt a mode of communion and listen to him. Given his complex teaching

style, it is not surprising that Franklin said of his over 50 years of teaching that it is "the thing that I like most of all."[5]

A second polarity that emerged from the interviews involved the productive tension in work between *passionate investment* and *detached objectivity.* One of the best examples of this combination emerged from an interview with another leading historian, Natalie Davis. Her awareness of this dialectical tension in her working style was unusually clear:

> Well, there're two different things—they overlap. One is this intense interest in finding out what was going on in the past…. I like to take mysteries to solve and I'm just very, very intrigued…. There is a kind of a rush of affect about it that I think is even more than curiosity…. I often say that I love what I'm doing and I love to write…. It's the curiosity part that pushes me to think about ways of finding out about something that I thought, or previous people thought, or people could not find out about, or ways of looking at a subject in ways that had never been looked at before. That's what keeps me running back and forth to the library and just thinking and thinking and thinking.

Equally as important as affect, however, is a mode of *detachment* that allows the person to make sure that the enthusiasm fits reality.

> It is very important to find a way to be detached from what you write… to let you work out the criticism. You can't be so identified with your work that you can't accept criticism and response…. The side of me that is more… detached tries to let the situation that I'm writing about, and its complexities… just be. The danger of too much affect is not only that the self gets too involved in it where we can't take criticism… but also that there's too much restructuring of the people around your own investment.

When asked about how these modes fit together, she elaborated:

> It is not as difficult now to be of several minds when I'm writing something: the side that's absolutely carried away, floating along with the project, and the side that's also detached and looking at myself…. They fit together. I don't feel it's one phase or the other…. It's immense curiosity in the beginning… you find all this stuff and then you begin to shape it…. The movement between identification, affect on one end, and detachment on the other, it has always got to be. And I feel this is present from the beginning, this kind of vacillation… the positioning of myself with different vantage points.

These passages provide a compelling illustration of complexity in action. Davis's passion and curiosity invite differentiation and save her work from tedium and rigidity; her detachment, in contrast, begins the process of criticism and the shaping of the multiple pieces into an organization that is not characterized by

[5] We will have more to say later in the chapter about this interpersonal dynamic, and about how qualities such as agency and communion in children may be nurtured in family interaction. For instance, a mother's communion has often acted as a buffer for the father's agency, and vice versa. This traditional, sex-typed alliance is but one ''solution" for creating a family context that spares children the fate of growing up in a home that overemphasizes one or the other quality and thus forces children into *one pattern of response*. We will return to this observation when considering how early experience within the family may have consequences for attaining complexity in later life. For now, we point out that parents with androgynous parenting styles have reported *more enjoyment in parenting* (Lamb, 1982).

premature closure. In Davis's words, moments of synchrony between these two modes achieve a *multiple vision,* or being of "two minds" at once. Having these two vantage points prevents the work from being either conventional or idiosyncratic and allows it to develop and to grow.

A third polarity is related to the previous one, and can be described as the combination of *divergent* and *convergent* thinking. Convergent thinking involves the ability to find commonalities in varied information; it is a rational, problem-solving orientation representative of the kind of intelligence that is often measured by 1Q tests. Convergent thinkers have, so to speak, internalized the social mind; their thoughts usually can be predicted from knowing what others have thought. In contrast, divergent thinking is oriented toward individuality and problem finding. In involves fluency, or the ability to generate many ideas, explore multiple perspectives, make unusual associations, and so on (Guilford 1967; Runco 1991). This ability has been thought to be synonymous with creative thinking.

Divergent thinking, however, is not much use without convergent thinking as a counterbalance, and vice versa. This point came across in the remarks of another eminent scholar, the historian William McNeill. He described the starting point for his work as a process that led to "finding one's bent." Once an idea appeared in his mind, he found that it would spontaneously "crop up" in many different contexts, including some where he did not expect to find it. At some point in this divergent, differentiating process, however, a more convergent frame of mind was needed to gauge how the idea fit with reality. The later mode helped to bring closure and required more meticulous work, self-criticism, and intellectual integrity. The following quotation discusses this coordination of divergence (openness) and convergence (closure):

> I've looked at myself and my colleagues and thought about what it is that makes some people able to get things done, write books, write articles, complete tasks, and someone else of equal intelligence, perhaps of superior intelligence, never quite gets things done—he wastes time, he throws his time away, deadlines go past and still he isn't done. I think the most important discrimination involves two things. One is the capacity to focus attention—called attention span in small children—which varies enormously. There are people who are always looking for an interruption and run off like that [snaps fingers] given the possible chance. You have to have tunnel vision…. The other thing is that you can handle the hypercriticism…. I know some of my colleagues who had extremely powerful and original minds, but who looked at what they had written and always said "it's not good enough." That is hypercriticism and they're really frozen by their own critical capacity. There is a nice balance—surely you want to be critical of what you've done, rewrite it, think it through carefully, not splash it on to a page and say that's it. But too much criticism can be self-destructive, and too much openness can be self-destructive. You have to have a balance, a certain openness up to a certain point, and then get it done, and be willing when it comes time to do it, to say… "I'm going to lock on this task now, it's time to do it"…. [It is] closing things off at the right time, and not letting your critical faculty get so acute, so sharp that you can't get anything done. Both extremes I've seen act destructively upon… achievement…. They can be obstructive, perhaps, not destructive, but obstructive…. I think if you just study people around you reflecting on those who do and those who don't accomplish things they want to, these are the two pitfalls [too open, or too closed] that I've become aware of, things that obstructed very competent minds from achieving that which they wished to do.

A fourth polarity is again related to the previous two. Similar to the polarities of attachment/detachment and divergent/convergent thinking is the coordination of *playfulness* and *discipline.* The sociologist David Reisman, for instance, succinctly described such a synthesis in his comment that he "wanted at the same time to be irresponsible and responsible." The sculptor Nina Holton articulated in more detail the need for a sense of play and work to permeate the creative process:

> Tell anybody you're a sculptor and they'll say "Oh, how exciting, how wonderful." And I tend to say "What's so wonderful?" I mean, it's like being a mason. Or being a carpenter, half the time. But they don't wish to hear that because they really only imagine the first part, the exciting part. But, as Kruschev once said, that doesn't fry pancakes, you see. That germ of an idea does not make a sculpture which stands up. It just sits there. So, the next stage, of course, is the hard work. Can you really translate it into a piece of sculpture? Or will it be a wild thing which only seemed exciting while you were sitting in the studio alone? Will it look like something? Can you actually do it physically? Can you, personally, do it physically? What do you have by way of materials? So, the second part is a lot of hard work. And sculpture is that, you see. It is the combination of wonderful wild ideas and then a lot of hard work.

A third instance of this polarity was expressed by Jacob Rabinow, one of the most prolific inventors in the world. When working on a project that required more discipline than playful intuition, he would use a mental "trick" to slow himself down:

> Yeah, there's a trick I pull for this. When I have a job to do like that, where you have to do something that takes a lot of effort, slowly, I pretend I'm in jail. Don't laugh. And if I'm in jail, time is of no consequence. In other words, if it takes a week to cut this, it'll take a week. What else have I got to do? I'm going to be here for 20 years…. See? This is a kind of mental trick. Because otherwise you say, "My God, it's not working," and then you make mistakes. But the other way, you say time is of absolutely no consequence. People start saying how much will it cost me in time? If I work with somebody else it's 50 bucks an hour, a hundred dollars an hour. Nonsense. You just forget everything except that it's got to be built. And I have no trouble doing this. I work fast, normally. But if something will take a day gluing and then next day I glue the other side—it'll take two days—it doesn't bother me at all.

A fifth polarity that is less obviously related to the preceding ones is the coordination of *extroversion* and *introversion.* It is not uncommon that particular individuals prefer to be either at the center of action or at a spot along the periphery that allows them to observe what is going on. Generally people tend to be either on one or the other side of this dimension; in fact, whether one is extroverted or introverted is held to be one of the basic and most enduring traits of personality (McCrae and Costa 1984; Costa and McCrae 1980). Complex persons, on the other hand, seem to enjoy both the company of other people or solitude, depending on the demands of the moment. The physicist and writer Freeman Dyson, for instance, pointed to the door of his office and said:

> Science is a very gregarious business. It is essentially the difference between having this door open and having it shut. When I am doing science 1 have the door open. I mean, that is kind of symbolic, but it is true. You want to be, all the time, talking with people. Up to a point you welcome being interrupted because it is only by interacting with other people that you get anything interesting done. It is essentially a communal enterprise…. There are new things happening all the time and you should keep abreast and you keep yourself aware of what is going on. You must be constantly talking. But, of course, writing is different. When I am writing I have the door shut, and even then too much sound comes through, so, very often when I am writing I go and hide in the library where nobody knows where I am. It is a solitary game. So, I suppose that is the main difference. But, then, afterwards, of course the feedback is very strong… and you get a tremendous enrichment of contacts as a result. Lots and lots of people write me letters simply because I have written books which address a general public, so I get into touch with a much wider circle of friends. So it's broadened my horizons very much. But that is only after the writing is finished and not while it is going on.

In this comment, contact with people—talking, listening—is identified with keeping abreast of new things and different points of view. While interaction is a process of letting in information, closing the door for solitude is a process of limiting information. The door, so to speak, acts as a boundary between self and other much as intellectual detachment creates "distance" from spontaneous action so that feedback can be integrated. Others have noted that social interaction is a dialectical process between forces driving people together and apart, and either excessive openness or closedness has detrimental effects on relationships and personal growth (Altman 1975; Altman et al. 1981). An excessive orientation toward extroversion or toward introversion reduces our flexibility to negotiate a rewarding self-environment fit; it makes us more predictable, less sensitive to the moment, and therefore less complex in response to the variable needs of the situation. The introvert may forfeit the opportunity to grow because of lack of stimulation, and the extrovert because he or she does not take time out to reflect on experience.

The following quote from Piaget (1952) fits well with Dyson's description of the dialectic of contact and solitude: "It is true that I am sociable and like to teach or to take part in meetings of all kinds, but I feel a compelling need for solitude and contact with nature. After mornings spent with others, I begin each afternoon with a walk during which I quietly collect my thoughts and coordinate them, after which I return to the desk at my home in the country…. it is this dissociation between myself as a social being and as a "man of nature" (in whom Dionysian excitement ends in intellectual activity) which has enabled me to surmount a permanent fund of anxiety and transform it into a need for working" (p. 55).

A sixth polarity might be described in terms of the interconnection between periods of *energy* and *quietude.* As one might expect, many of those interviewed for the study worked long hours with great concentration and intensity; however, this did not mean that they were slavishly tied to their work. On the contrary, it was not uncommon to come away from interviews with the impression of persons who were unhurried and at peace with themselves. It is especially startling to hear people with a lifetime of exceptional accomplishments to their credit describe

themselves as fundamentally lazy. Only a self-imposed daily discipline, they say, kept them from giving into the lackadaisical side of their nature.

Several told stories that helped to explain these apparently contradictory traits, stories that portrayed a harmonious interweaving of activity and rest. For instance, the economist Kenneth Boulding described working in beautiful, natural settings by "writing" with a tape recorder while looking at a mountain stream. And there were numerous stories of intense periods of work interspersed with naps, walks, bike rides, gardening, chopping wood, and other diversions that had more than a restorative relation to work. The important theme that emerged linking these diverse anecdotes was that the energy of these persons was not controlled entirely by external schedules. Rather, they instinctively knew when to focus their attention and when to relax it; several commented that they had "mastered their own time." They considered the rhythm of activity and idleness to be important for the success of their work, and they learned such strategies from trial and error. The Canadian novelist Robertson Davies gave the following entertaining example:

> Well, you know, that leads me to something which I think has been very important in my life, and it sounds foolish and rather trivial. But I've always insisted on having a nap after lunch, and I inherited this from my father. One time I said to him, "You know, you've done awfully well in the world. You came to Canada as an immigrant boy without anything and you have done very well. What do you attribute it to?" And he said, "Well, what drove me on to be my own boss was that the thing that I wanted most was to be able to have a nap every day after lunch." And I thought, "What an extraordinary impulse to drive a man on!" But it did, and he always had a twenty-minute sleep after lunch. And I'm the same. And I think it is very important. If you will not permit yourself to be driven and flogged through life, you'll probably enjoy it more.

Finally, complexity was manifested by attitudes toward work that were at once *iconoclastic* and *traditional,* oriented toward blazing new trails while preserving the integrity of their respective domains of action. Contrary to the modern prejudice that holds that old ideas are probably wrong, and that anything new must be better than whatever is old, these individuals understood that ideas and practices that have been passed down through the generations must have had some advantages or they would not have been preserved, whereas novelties have not yet stood the test of time.

Without question, a strong and independent ego characterized many of those we interviewed; yet so did humbleness and a clear awareness that in their work they "stood on the shoulders of giants," and that their achievements were made possible only by the tradition in which they were trained. Confidence often fed into an aggressive, iconoclastic disposition; for instance, the Nobel-prize winning economist George Stigler stated:

> I'd say one of the most common failures of able people is a lack of nerve. And they'll play safe games. They'll take whatever the literature's doing and add a little bit to it.... So there's a safe game to play. In innovation, you have to play a less safe game, if it's going to be interesting. It's not predictable that it'll go well.

But innovation for its own sake does not make sense, except in relation to the tradition of thought that provides the background against which novelty can be

recognized. The artist Eva Zeisel produces ceramics that have been recognized by the Museum of Modern Art in New York as masterpieces of contemporary design, yet she feels rooted to the artistic folk tradition in which she grew up as a young girl in the early decades of the century. She shows a keen awareness of the interplay between innovation and tradition in the following excerpt:

> This idea to create something different is not my aim, and shouldn't be anybody's aim. Because, first of all, if you are a designer or a playful person in any of these crafts, you have to be able to function a long life, and you can't always try to be different. I mean different from different from different… to be different is a negative motive, and no creative thought or created thing grows out of a negative impulse. A negative impulse is always frustrating. And to be different means not like this and not like that. And the "not like"—that's why postmodernism, with the prefix of "post," couldn't work. No negative impulse can work, can produce any happy creation. Only a positive one.

Dialectical Thinking and Optimal Experience

The concepts of agency, passion, divergent thinking, playfulness, extroversion, iconoclasm, and energy share common features, as do communion, detachment, convergent thinking, discipline, introversion, tradition, and quietude. This, of course, is partly due to the selective focus that was brought to bear upon the interviews; in other words, to some extent we found in the interviews what we were looking to find. But there must be more to these polarities; countless related ones have surfaced in many fields of study and in different religions, mythologies, and philosophies in the East and the West. They are present in the Buddhist philosophy associating the optimal experience of Nirvana with the middle path between the so-called yang qualities of the male (e.g., dominance, activity, aggression) and the yin qualities of the female (e.g., passivity, receptivity, yielding) (Kuo 1976). Notions of dialectical opposition are also woven into the fabric of Western thought from early philosophers such as Anaximander and Heraclitus, through Aristotle and Plato, and continuing through Marx, Hegel, and others (see Adler 1927; Rychlak 1976). Such oppositions have also characterized some of the most prominent theories of human development, from Freud's notions of the ego mediating demands from the id and superego to Piaget's dialectical model that we discussed earlier in some detail (see also Lerner 1976; Riegel 1973).

The emergence of related dialectical themes from so many different time periods and cultures provides a compelling reason for theorists of human development to continue to puzzle over their meanings. Our interpretation of the polarities culled from the interviews emphasizes the phenomenological perspective that we have tried to develop in this chapter. It looks across all of the complementary pairs and asks: How is each related to the optimal experience associated with structure changing and building, and thus with moving beyond boredom and anxiety? A phenomenological interpretation cannot provide a comprehensive explanation for the existence of these various polarities, but it does

Table 2.1 Contrasting traits conducive to optimal development in later life

Qualities associated with escaping boredom through seeking new challenges	Qualities associated with overcoming anxiety through developing new skills
Agency	Communion
Passion	Detachment
Divergent thinking	Convergent thinking
Playfulness	Discipline
Extroversion	Introversion
Energy	Quietude
Iconoclasm	Tradition

provide an often overlooked entry point for theorists and researchers who are interested in exploring dialectical themes.

Table 2.1 summarizes the contrasting traits that were illustrated by the interviews, and it suggests in general terms how they relate to our experiential model. If one of the most important goals of development is a person's flexibility in adjusting to ever new situations (Kelly 1955; Lerner 1984), then the material from the interviews attests to potential for human flexibility in later life. But more important, it helps to explain how experience is optimized by avoiding the boredom of overly integrated states and the anxiety of overly differentiated ones. In other words, the polarities are instructive for understanding the process of finding challenges and building skills, and thus also for understanding the temporary equilibrium of challenges and skills that trigger flow experiences.

Why, for instance, has John Hope Franklin enjoyed teaching so much? How are the qualities of agency and communion related to his enjoyment of teaching? A phenomenological interpretation suggests that his complex teaching style was *self-correcting,* thus allowing him to avoid the negative experiences associated with being too receptive to students or too directive toward them. The former problem plagues those who try to accommodate every encounter with the other; it transforms interaction into an activity that is experienced as overwhelming, lacking in control, and thus inviting anxiety. On the other hand, consistently ignoring the interests and points of view of others, never changing one's behavior in response to the encounter, makes interaction monotonous and boring.

Both extremes are avoided in Franklin's teaching style because he is capable, as the changing situation warrants, of shifting between the qualities of agency and communion. In the example cited earlier, he did not hesitate to be emphatic in response to his student's overly enthusiastic "discovery." He listened attentively to the student, letting him take the lead. Yet based upon knowledge gained through this episode, Franklin will be better able to find the right time to insist that the student check his facts. In this way, his agency as a teacher is supported by insights gained through communion. And the same can be stated in reverse: Franklin's responsiveness to his student was initially set up by taking his class to North Carolina and assigning the study of the Reconstruction period. In this way, the polarity of agency and communion helped to negotiate the most rewarding fit

between teacher and student and presumably made this experience of teaching more enjoyable.

A similar reasoning would hold for the other polarities. The process of work (e.g., writing, research, sculpting) was presumably more rewarding for those who described various combinations of playfulness with discipline, passion with detachment, and so on, because of the greater flexibility in forging a self-environment fit. For instance, Davis's notion of observing immediacy (i.e., being of two minds at once) allowed her to recognize problems as they arose in the spontaneous course of working. Curiosity elicited a need for detachment to shape the material generated in this exploratory mode; this feedback from active engagement led to the discovery of problems that needed to be recognized and solved. Borrowing a phrase from the philosopher and theologian Paul Tillich (Gilkey 1990), it might be said of Davis and others who expressed similar dialectical themes that their *objectivity was based on intense subjectivity.* And the converse of this statement is likewise relevant: *their subjectivity was based on intense objectivity.* In other words, it was through recognizing and solving problems (e.g., through critical revision of written work, "tricking" themselves into more patient modes of work, closing the door for solitude) that they constructed the skills and sense of confidence that, in turn, supported modes of spontaneous exploration.

That subjectivity and objectivity must be coordinated to sustain involvement does not explain how or why this combination facilitates flow experiences. The following analogy is helpful in this regard. Imagine that you are playing a game of bridge or chess. Part of the enjoyment of the game derives from making the best decisions in terms of the rules of the game. In fact, without following the rules scrupulously, one could not even play, let alone enjoy it. Yet if all one had to do was follow a prescribed script, the game would not be enjoyable either. Within the rules there must be space for uncertainty, for individual style, for taking a risk, for expressing one's preferences.

The same is true of interactions in general: one cannot enjoy a conversation unless one pays attention to the other's words and expressions; yet one also has to have an opportunity to express one's own emotions and ideas. An enjoyable novel has a strong plot and clearly delineated characters that create a concrete, objective world of their own. Yet to be enjoyable, the novel must also leave space for the reader to project his or her imagination between the lines, so that the reading becomes a process of cocreation, rather than the passive decoding of the author's intentions. In each of these instances, enjoyment follows from the dynamic interplay between subjectivity and objectivity, and it is this that leads to higher levels of complexity.

In summary, the polarities described above instigate a person's development while optimizing his or her experiences; each describes, albeit in different ways and in regard to different activities, a flexibility in negotiating a fit between self

[6] Lerner(1984), in addition, contains an in-depth, multidisciplinary look at human plasticity, its foundation in evolutionary processes, and the developmental importance of flexible self regulation.

and environment (for further discussion of goodness-of-fit models see Lerner 1984; Thomas and Chess 1977).[6] One extreme of each polarity describes the more aggressive movement of self into environment (i.e., assimilation that moves toward accommodation), and the other half describes the receptive movement of environment into self (i.e., accommodation that moves toward assimilation). A person who is able to enact both processes at the same time can (a) effectively counterbalance the movement toward differentiation with integration, and vice versa; (b) avoid the loss of psychic energy associated with persistent boredom or anxiety; and (c) better direct and invest attention in rewarding and growth-enhancing activities.

Complexity and Wisdom

We have seen earlier that of the roles available in the cultural repertoire for an older person, perhaps the one that best captures the optimal developmental outcome is the notion of *wisdom.* We now return to examine more closely what this concept entails and how it is related to the dynamics of complexity developed in the previous section.

Wisdom as a quality of the long-lived person in a community is a theme that repeatedly occurs in Eastern and Western cultures. Such persons are thought to have a special insight that enables them to make or advise the "best" course of action in a given set of circumstances. The transmission of this idea across countless generations and societies argues for its validity on evolutionary grounds. In other words, just as biological information that helps survival is transmitted from one generation to the next, it is reasonable to believe that the cultural transmission of this concept, with its rich web of meaning, is important for similar reasons (Csikszentmihalyi and Rathunde 1990).

There are many names by which a wise person is known: mentor, sage, counselor, elder, teacher, and so on. All of them connote one attribute that we believe is central: *an ability to select, or help others select, a course of action that is optimal for survival and growth, based upon insight in regard to the relevant life processes.* The wise person, in the broadest sense, is able to give good counsel about solving fundamental problems of living (Baltes, chapter "The Quality of Experience of Asian American Adolescents in Activities Related to Future Goals", this Volume). Such counsel, in both the East and the West, has historically been linked to reflection on life experiences; through reflecting upon the successes and failures in a long life, the wise person develops a *meta-awareness of the process of the self-environment relationship* (Rathunde in press-c). A wise teacher, for instance, has been described as unobtrusive, discrete, and patient, qualities that facilitate the joyful self-discovery of younger individuals by allowing them to make mistakes that further their growth (Chinen 1984; Clayton and Birren 1980). Such decisions of noninterference (or interference) are based upon a superior

awareness of complex interpersonal processes, as apparently was the case with the historian John Hope Franklin's interaction with his student.

A central characteristic of wisdom, mentioned earlier, is the ability to transcend narrow, specialized thinking and to see events within their broader contexts. John Reed, CEO of Citicorp and one of the most astute and successful captains of finance, describes his ways of approaching problems:

> I have always been a person who had to understand the context within which I operate. Some people are perfectly capable of coming in and saying, "Gee, the cars are going out with bent fenders, what do I have to do to get rid of that?" and they'll just figure out what machine is bending the fender. It'll never interest them who designed the car, who is going to own it, or any of the other externalities. I'm not that way at all. I'll work a problem, but in order for me to identify with it, I have to have a context. So I get curious: Who is going to drive the car? Why was it designed this way? Does the bending of the fender have to do with the design? That is the pattern of my thought process—I have always tried to put it into a context.

It is important to note that Reed does not claim that his holistic, contextualized approach makes him a more successful businessman; in fact, he provides examples of very effective CEOs whose tunnel vision expresses only convergent thinking. But he claims that personally he enjoys the more complex contextual approach and could not think otherwise. (Of course, to continue in his role, Reed has to satisfy the objective rules expected of a person in his position, and in fact, during the last 4 years, the value of his company's stock appreciated by over 400 %.)

Contemporary research on wisdom suggests useful standards for the process of optimal human development. Sternberg (1990) describes wisdom, in contrast to intelligence and creativity, in the following way: "The wise person seeks to understand the meaning and limitations of this [existing] knowledge. The intelligent person seeks to make optimal use of this knowledge. The creative person, though, wishes to be freed from this knowledge" (p. 153). Using the analogy of three branches of government, Sternberg associates wisdom with a *judicial* function of mental self-government, intelligence with an *executive* function, and creativity with a *legislative* function. Such a tripartite schema is consistent with what has been said thus far about complex systems. A creative/legislative response represents the movement toward differentiation, or the attempt to go beyond what is known and to generate novelty; an intelligent/executive response, in contrast, can be thought of as the movement toward integration, in that it seeks consistency based upon establishing clear and predictable parameters for action. Finally, a wise/judicial response expresses a contextual evaluation of the process of knowing and therefore an understanding of the strengths and limitations of legislative/creative and executive/intelligent responses.

Attaining wisdom, then, allows the person to combine these self-governing functions in a way that is optimal for development. A creative response may generate movement toward change, but for this reason it may not be useful in situations that call for decisive action. An intelligent response may reinforce consistency, but would be inadequate for generating new ideas. A wise response would reflect an awareness of how each function compensated for the limitations of the

other: intelligence would be rigid if not informed by creativity, and creativity would lead to chaos if not reined in by the focus of intelligence. In the final analysis, it is wisdom that takes into account specific self-environment circumstances, evaluates them in terms of process, and thus gains oversight as to when creative responses must give way to more intelligent ones, and vice versa. A wise response would therefore reflect what Rogers called the predictable unpredictability of the fully functioning person: whether a particular response (i.e., seeking change or stability) is appropriate may not be known in advance; yet the action that best fits the situation at hand will reliably be chosen, and such actions may reflect either continuity or discontinuity (see also Lerner and Busch-Rossnagel 1981). Thus, wisdom is yet another way to describe the flexibility of the complex person who finds the best path toward growth and optimal experience (see also Rathunde 1995).

Recently, a number of researchers investigating adult development and *post-formal cognition* have similarly depicted the flexibility and the dialectic performance of so-called wise persons (Brent and Watson 1980; Clayton and Birren 1980; Holliday and Chandler 1986; Kramer 1983; Labouvie-Vief 1980, 1982; Pascual-Leone 1990; Sinnott 1984). Labouvie-Vief (1990), for instance, notes the dualities described by Piaget (e.g., assimilation and accommodation), by Freud (e.g., primary and secondary processes), by James (e.g., the spontaneous "I" and the conceptual "me"), and even by contemporary neuropsychologists who contrast two different anatomically and chemically based processing systems (see Tucker and Williamson 1984). She utilizes the historical distinction between *mythos* and *logos* to label these dual modes. Mythos signifies *a close identification of the self with the object of thought* (i.e., a mode of subjectivity where knower and known are indivisible); logos signifies the use of reason, or *the ability of thought to separate subject and object,* to logically analyze a relationship.

Labouvie-Vief (1990) conceives wisdom as *reconnecting* these two important ways of relating to the world. Traditionally, they are often set against each other and dichotomized. Thus, mythos has come to be identified with emotion, the body, subjectivity, and other so-called feminine characteristics; logos, in contrast, because of its correspondence to rational thought, the mind, objectivity, and so on, has been perceived as more masculine.[7] This is also the dichotomy that underlies the gender differentiation of children in our culture (Gilligan 1982; Gilligan et al. 1990). If wisdom reconnects these modes by looking beyond their illusory polarization, then such a description comes close to the meaning of complexity.

Others have identified related polarities that are characteristic of wisdom. Meacham (1983) has described a balance of *mature faith* and *cautiousness*; Erikson et al. (1986) discuss the same idea as the blending of *trust* and *skepticism.* Trust and faith allow one to engage activities wholeheartedly and with spontaneity

[7] It is worth nothing that this alignment of objectivity and subjectivity with masculine and feminine characteristics is best suited to instrumental domains, where it is men who have traditionally had to learn to accommodate to reality demands; this alignment would often be reversed in expressive, social activities, where women have had to assume more objective modes of self-sacrifice.

that leads to new ideas and connections; skepticism and caution, in contrast, slow down this movement to integrate the emergent connections in a way that best cuts with the grain of reality. The dissociation of these qualities not only describes a condition that has negative consequences for individuals, it also sheds light on unwise practices in larger social system. For instance, Tillich's project of synthesizing objectivity and subjectivity implied a cultural critique. He suggested that modern science, by overemphasizing the scientist's need to be detached to know the object (i.e., by ignoring the reverse fact that subjectivity provides the basis for objectivity), has primarily identified itself with the objective-detachment pole of the dialectic, resulting in the disassociation of technical knowledge from human concerns and interests. This, in turn, has resulted in the many current problems and dangers associated with the undirected use of technology.

In summary, wisdom is a cultural mask that depicts the fullest expression of what has been described here as complexity. The wise person develops, to a greater extent than most, the capacity to move toward optimal experiences by understanding the dynamic relation of self and environment. This is perhaps why wisdom is often discussed in the context of states of transcendence or ecstasy. The wise person, presumably as the result of reflection on a long and rich life, understands the twin needs for integration and differentiation: the need to accommodate to avoid anxiety and disorder, and the need to assimilate to avoid boredom and stagnation. Such persons are best prepared to turn any situation to their advantage by consistently moving toward synchrony, but in an unpredictable fashion that depends specifically upon time, place, and context.

Descriptions of the wise person, like descriptions of any complex system, will of necessity be paradoxical, and are best expressed through dialectical notions that emphasize process, opposition, and interaction in specific circumstances. Thus, developmental research aimed at better understanding such instigative characteristics of persons will undoubtedly prove to be difficult. Nevertheless, productive research is already proceeding under the aegis of wisdom as a potential adult outcome (e.g., Baltes, this Volume). A phenomenological interpretation of wisdom may add to this growing body of work. In addition to empirical studies, more hermeneutic studies of wisdom in various cultures and historical periods would also be useful.

Complexity, Ego Control, and Ego Resiliency

Besides theory and research on wisdom there are other connections that might be drawn between the notion of complexity and the literature on adult development. One related perspective focuses on ego control and ego resiliency (Block and Block 1980). While work in this area does not address the motivational aspects of optimal experience, it does share a conceptual overlap with the ideas presented here in three important ways: (a) a focus on the dynamics of change and process (e.g., assimilation and accommodation); (b) a focus on personal characteristics that

identify different capacities for the flexible use of assimilating and accommodating processes for adaptation to environmental circumstances; and, important for our focus on child development later in the chapter, (c) an attention to family dynamics and how socialization impacts a person's flexibility.

Developmental research has often investigated self-control, willpower, postponement of immediate gratification, tolerating frustration, and related processes (e.g., Brandstädter, this Volume). Research in these areas has proceeded in three directions under the intellectual traditions of learning theory, Vygotskian theory, and psychoanalytic theory (see Harter 1983). Freud linked self-control to ego strength and the person's ability to adhere to the reality principle (Freud 1922). Work on *ego control* and *resiliency* emerges from this tradition. The former concept describes a person's capacity for self-control. Block and Block (1980) conceptualize ego control on a continuum of under-control to overcontrol: undercontrollers have permeable self-other boundaries in the sense that they have an inability to delay gratification, exercise caution, foresee the consequences of their actions, and thus manifest more immediate and direct manifestations of affect; overcontrollers, on the other hand, restrict spontaneous expression of affect, show excessive rigidity, and thus have a much higher threshold of response.

Although neither extreme of ego control is ideal for development, one might think of each as a "positive" characteristic that has been taken too far. For instance, undercontrollers are "open" to the other because of their permeable boundaries, but relatively closed to self-reflection; on the other hand, overcontrollers are "open" to the self because their defensive boundaries allow the self to become an object of reflection, yet they are relatively incapable of spontaneous action. Although originally a description of adult characteristics, the Blocks (1980) suggest that similar traits can be observed in children: undercontrollers are "more active, assertive, aggressive, competitive, outgoing, attention-seeking, extrapunitive, over-reactive to frustration, jealous, exploiting, and less compliant, orderly, yielding, and private than children scoring in the overcontrolled direction" (p. 68).

It is interesting to note the similarities between the characteristics of undercontrollers and overcontrollers and the polarities listed in Table 2.1. The active traits that we identified with moving toward differentiation and finding challenges (e.g., agentic, extroverted, passionate), and those identified with moving toward integration and skill building (e.g., receptive, introverted, detached) are quite similar in meaning to those used to define the two sides of ego control. It is reasonable to see the complex person as someone capable of "loosening" and "tightening" self-other boundaries depending on the particular situation. And this is similar to what the Blocks describe as ego resiliency. The concept of resiliency was derived from Lewin's (1951) notion of elasticity. "Elasticity refers to the capacity of the boundary to change its characteristic level of permeability-impermeability depending upon impinging psychological forces, and return to its original modal level of permeability after the temporary, accommodation-requiring influence is no longer pressing" (Block and Block 1980, pp. 47–48).

High ego resiliency describes a capacity for flexible adaptation to changing life circumstances, whereas low resiliency results in "ego brittleness." By combining

the implications of ego control and resiliency, the Blocks established a fourfold typology: brittle undercontrollers versus resilient undercontrollers, and brittle overcontrollers versus resilient overcontrollers. The brittle ego is subject to the potentially negative consequences of undercontrol (i.e., impulsiveness, restlessness, fidgeting), whereas the resilient ego draws on its strengths (i.e., curiosity, energy, spontaneity). Similarly, the brittle ego suffers the downside of overcontrol (i.e., anxiousness, inhibition), whereas the resilient ego can draw on its advantages (i.e., reflection, calmness, empathy).

Our descriptions of wisdom and the complex person would constitute an additional type: a person who can take advantage of the full range of permeability-impermeability in regard to self-other boundaries to attain optimal experience. Whereas the Blocks' position places a person at one or the other end of the ego control continuum, psychological complexity suggests that both ends can be part of a person's repertoire of masks, to be flexibly used when needed. Our perspective also contrasts with other personality theories that identify major traits thought to be stable during adulthood (e.g., Costa and McCrae 1980). Such approaches may constrain measurement in ways that identify persons as consistently high or low on one trait (e.g., openness to experience), rather than conditionally high or low depending upon the quality of experience in particular contexts.

Conceptualizing high-level adult thinking in terms of a *flexible repertoire* also provides an alternative to the postmodern practice of identifying a predominant thinking style in different persons and cultures (i.e., masculine versus feminine, individualistic versus communal, and so on), and then presuming that these styles are incompatible (Perkins 1996). Such differences can be seen as complementary parts of a repertoire. The Japanese, for instance, have a word, *kejime,* to describe the successful ability to shift between spontaneous and disciplined behavior (Bachnik 1992). Doi (1986) views the Japanese self as organized by the situational shifting between these two modes, referred to as *ura* (in back) and *omote* (in front), respectively. Other paired terms are used to describe *relationships* between dualities that help a person to locate particular situations on an inner/self or outer/society axis. *Kejime,* or situational shifting, is therefore a crucial social skill for the Japanese and a major pedagogical focus in Japanese education, Bachnik (1992) comments that such a conception calls into question the appropriateness of either/or frames of reference that emphasize self or society: "Shifting would require pluralistic perspectives on the self and social order that could encompass disunity and chaos as well as unity and order" (p. 4).

In this section we have attempted to illustrate more concretely some of the characteristic qualities of complex persons, namely, qualities enabling a harmonious dialectic between differentiation and integration, which lead to the ability to play more meaningful cultural roles while allowing for the development of one's unique individuality. The brief examples of later-life complexity set the stage for discussing two areas of developmental research—wisdom, and ego control and resiliency—that have explored similar themes. These areas of research afford bridges to several ideas in this chapter, and they offer the potential for expanding on them.

Characteristics that make it possible to take an active role in creating one's environment and furthering development comprise only a part, perhaps only a small part, of the vast array of biological and cultural influences on the development of the person. Nevertheless, they comprise the part that is most *human* in human development. The capacity for lifelong learning and the relative lack of "hardwired" responses to the environment are perhaps *the* distinguishing characteristics of humans. Lerner (1984) reached the same conclusion, arguing that what is optimally developed in development is the style or self-regulative capacity to adapt to unforeseen contextual conditions (i.e., changing self to fit context or context to fit self). Although such instigative characteristics are probably related to genetic predispositions (e.g., aspects of temperament may influence modal levels of openness/withdrawal, ability to focus attention, and so on; see Thomas and Chess 1977), they are also influenced by contexts of socialization, especially the family. Thus, a better understanding of how such characteristics may emerge through child development is a question central to understanding the development of the person.

The Foundations of Complexity in Child Development

Having sketched our ideas about adult complexity in theoretical terms and through examples of desirable outcomes, we turn our attention to examining how the foundations of complexity might be established in child development. Although it is impossible to trace with precision the evolution of the outcomes we have discussed, or support a strong causal position on the link between early experience and these outcomes, the assumption here is that our previous discussion will make it easier to identify processes in the early years that facilitate the full development of the person. Many of the presumed connections that are discussed await further research and verification. To limit the focus of the discussion, we make three additional assumptions:

1. If complex outcomes are manifested by dialectical polarities, then contexts that socialize such outcomes will presumably have a dialectical character.
2. Of the many relationships that are important for child development, one undoubtedly is foundational: *the parent-child relationship.* We therefore limit our discussion to parent-child interaction, starting in adolescence and working our way back to early childhood, and then infancy.
3. If there is a plausible link in the ontogenetic development of complexity from birth to old age, then it is reasonable to assume that human beings are prepared by evolution to (potentially) develop in such a way. Thus, we conclude the chapter by exploring the notion that complexity is a goal of human development rooted in our evolutionary history.

Guided by these limiting assumptions, this section explores the possible relationship between children's socialization and complex outcomes in adulthood. The approach taken is exploratory, with two intentions: to develop further the theoretical perspective in this chapter, and to stimulate future research on these and related issues.

The Importance of Social Context

How is a foundation for later-life complexity established in childhood? We agree with Bronfenbrenner (1992) that mature self-regulation is in large part the legacy of past social experience: "It is true that individuals often can and do modify, select, reconstruct, and even create their environments. But this capacity emerges only to the extent that the person has been *enabled* to engage in self-directed action as a joint function not only of his biological endowment but also of the environment in which he or she developed. There is no one without the other" (pp. 223–224). As to what type of environment is optimal: "Extremes either of disorganization or rigidity in structure or function represent danger signs for psychological growth, with some intermediate degree of system flexibility constituting the optimal condition for human development" (p. 241).

Following Piaget, most research that has explored the constructive nature of thought has not so valued interpersonal processes. Theoretical work on social cognition, for instance, has focused on how internal constructions—*developed independently of contact with other people*—affect the perception and therefore the dynamics of social interaction (Kahlbaugh 1993). Many of these theories, in addition, do not incorporate the dialectical insights of Piaget (Kuhn 1978). Thus, few attempts have been made to theorize how thought, in general, develops out of dialectical interactions between self and other.

In part as a result of the slow assimilation of the Russian perspective on development represented by the work of Luria and Vygotsky, a greater emphasis is currently being placed on how the person develops within a sociocultural context, and how higher mental functions are "internalized" from social interaction (Bruner 1990; Mead 1934; Rogoff 1990; Stern 1985; Wertsch 1979, 1985). The time is ripe, then, for approaches that *link dialectical developmental principles to social interaction.* Toward this end, the thought of James Mark Baldwin (1906, 1908, 1911) provides an important historical context (Kalbaugh 1993) and critical insights for our attempt to link phenomenology to social processes.

An Extension of Baldwin's Views on Development in Context

Baldwin's thought is relevant to the concerns in this chapter for several reasons. His theory of "development" (i.e., progress in constructing "platforms" of

organization) is dialectical and rests upon syntheses of dualistic oppositions. Much of what has been said earlier in regard to Piaget also applies to Baldwin: development proceeds through the interplay of a conservative, assimilating function that fits information to preexisting structures and a change-oriented accommodation function that reconstructs the subject due to opposition encountered in environment (see Broughton and Freeman-Moir 1982).

More important for our purposes are three differences between Baldwin and Piaget. First, Baldwin was more attuned to the importance of subjective rewards associated with successful adaptation; he believed positive experiences induced repetition, and repetition led to the formation of habits. As did his colleagues John Dewey and William James, Baldwin talked at great length about *interest* as the motivating force of attention (1906, see pp. 41–44). Thus, his insights are more in line with our goal of providing a phenomenological rendering of assimilative and accommodative processes.

A second crucial difference is the way Baldwin conceptualized optimal adult development. Piaget emphasized logical thought in his final stage of formal operations and the capacity to formulate rational hypotheses about relationships in the world. In his highest stage, hyperlogic, Baldwin emphasized *an aesthetic appreciation of the world that transcends dualities.* His descriptions of this stage resemble contemporary theories on postformal operations and wisdom (Basseches 1980; Kramer 1983), and our earlier comments on complexity in later life: "The intuition of reality reached in aesthetic contemplation preserves all the meaning of fact or truth except its externality to experience, and all that of use or worth except its subjectivity in experience; thus essentially removing from the constitution of the real the opposition of inner and outer, subject and object" (1911, p. 256).

The most important difference between Baldwin's and Piaget's models has to do with the role of social processes. For Piaget, the quality of the social environment could affect the speed with which children develop through various stages, not the quality of the stage itself; and social processes became more important as children developed more mature forms of thought. Social processes were more integral to Baldwin's account of development. He recognized the greater novelty associated with social interaction, and therefore its more important role as a source of resistance that promotes growth: "Persons remain, even after each vital experience with them, still the unreduced; and the individual's mass of surging psychic tendencies and dispositions comes up again and yet again to the task of appropriating them in the molds of habit and recognized fact" (1906, p. 61). Thus, one reason Baldwin located the development of the person more centrally in social interaction was because the other was more capricious, intrusive, and "self-nucleating," and therefore more of a stimulus to development.

It was through interaction that the assimilating and accommodating functions were stretched to the highest degree, and *these functions were developed from birth in coordination with a primary caretaker.* Through *imitation,* for instance, a child accommodates the other; but imitation is never "pure" in the sense of a replication because actions are infused with private meaning, and what is learned is always in relation to subjective experience. Similarly, when appropriating a

word, one makes it one's own by filling it with personal intention (Bakhtin 1981). In this way, accommodation is "creative" and not passive mimicking. Through a process of *ejecting* the self, on the other hand, the child assimilates the other on its own terms; when contradictions arise, the self is reconstructed. Thus, the dynamics of development are much like Piaget's, but relations with a primary caretaker are seen as essential to the dialectical growth of the self, and social dependency becomes essential for development to occur (see also Tobach 1981; Tobach and Schneirla 1968).

Interaction with a more powerful person (in relation to the child) will encourage accommodation; interaction with a less powerful person will favor assimilation. A mother might be thought of as "less powerful" when she is reactive to the wants and desires of the infant; in other words, when *she* accommodates, the child assimilates. A mother is "more powerful" when the child must accommodate, perhaps by imitating actions, reacting to verbal or physical stimulation, adjusting to schedules of feeding, and so on. One can see in this general dynamic how the dialectical growth of the self might proceed in a positive direction through the mutual give and take of mother and child, or how habits of unsuccessful assimilation or accommodation might develop through relations with an overly active or a chronically passive mother.

Stating the same using the commonsense terms *love* and *discipline*[8] to represent parenting behaviors that encourage assimilation and accommodation, respectively: When a parent appropriately mixes love with discipline, a child develops successful habits of assimilation and accommodation, thus making the coordination of these modes, and optimal experiences, more likely to occur. Over time, children socialized in homes that balance love with discipline develop a superior capacity to *self-regulate* their attention and respond to the environment in ways that promote optimal experience and growth. In other words, they are more likely to manifest the development-instigating characteristics that are associated with complexity.

There is a variety of ways parents might provide children with a healthy combination of love and discipline. One strategy is what we now think of as the traditional nuclear family. Fathers and mothers have historically created a well-rounded system through a division of labor: fathers play the role of disciplinarian and mothers that of nurturer (Parsons and Bales 1955). The manifestations of such traditional sex-role divisions are apparent in parental styles of interaction. For instance, fathers, due to their active styles, are more often a source of stimulation, whereas mothers are a source of arousal modulation or comfort (Field 1985). In

[8] Too often the word *discipline* is equated with punishment. The word is a derivation of the Latin *discipulus,* meaning pupil. This meaning reflects the idea that discipline is about *training the mind and character through experience.* Insofar as punishment furthers such training or instruction, its meaning is consistent with discipline.

general, fathers have been less sensitive to a child's perspective, and thus they have constituted a source of external challenge for the child; mothers have been more willing to subordinate their attention in support of their children's interests.[9] Although contemporary families maintain less rigid boundaries between parental roles, one still can observe strong vestiges of these historical patterns (Larson and Richards 1994).

The traditional solution, however, is but one of many possible ones. One or both parents, or a single parent, can adopt an *androgynous* role as a nurturer and disciplinarian. Arguably, such a style holds distinct advantages for the well-timed delivery of love and discipline, and thus for achieving a more satisfying parent-child relationship (i.e., a mother would not have to rely on "Wait until your father gets home" to provide discipline, and a father would not have to use the refrain "Go ask your mother" when asked for support). It is not hard to imagine several other ways that love and discipline can be effectively combined. A nurturant family, for instance, may enroll the child in a school that is intellectually and physically rigorous. Or a child with accomplished and demanding parents may be accommodated by an attentive caregiver or by other members of the extended family. The point is not to argue for a particular family organization (although some arrangements may be advantageous); rather, the claim is that *children who develop strong habits of assimilation and accommodation in some proximal context of socialization* are more likely to develop a mature ability to self-regulate as adults.

Parent-Child Interaction and the Growth of Complexity

The above hypotheses about social interaction and dialectical development are used next to explore and integrate various perspectives on parenting over the course of child development. In the following selective review, we attempt to link parental love and discipline, or *support* and *challenge,* to three stages of child development: adolescence, early childhood, and infancy.

Parenting in Adolescence

Does a family still influence adolescent development? Do the qualities of love and discipline still matter, and in the ways discussed above? Even if interactions with parents were related to habits of self-regulation, it could be argued that patterns established in childhood would be relatively "fixed" by the teenage years; in

[9] If reacting to a "more powerful" father is associated with learning habits of accommodation, then the increasing absence of father involvement in modern homes could help to explain the apparent decline of social integration in many communities.

Vygotskian (1978) terms, the "intermental" would have already become the "intra-mental." Furthermore, adolescents encounter a much wider social circle than young children and fall under the sway of peer influence. They have also wider unsupervised exposure to symbolic media (e.g., television, books, music, and film), as well as the effects of schooling. Despite all of the above influences, however, a great deal of research suggests that parental qualities like love and discipline (referred to by various names in the literature) are still important for adolescent development (Damon 1983; Irwin 1987; Maccoby and Martin 1983).

Baumrind (1987, 1989) has associated the combination of "responsiveness" and "demandingness" (i.e., authoritative parenting) with optimal competence in adolescence, operationally defined as the androgynous combination of *agency* and *communion.* Cooper and her colleagues (Cooper et al. 1983) found that the combination of *connection* and *individuality* in family interaction (i.e., listening and coordinating views, and expressing individual options) was related to adolescents' identity achievement and role-taking skills. Both of these outcomes demonstrate effective differentiating and integrating processes: identity achievement requires a period of *crisis* (i.e., the exploration of alternatives) and *commitment* (i.e., firm decisions after considering the alternatives; Marcia 1966); role taking requires considering others' perspectives, and then integrating one's own (Cooper et al. 1983). Finally, Hauser's (1991) research has revealed how supportive (*affective enabling*) and challenging (*cognitive enabling*) "moves" in family conversations were related to higher adolescent ego development; it also seems that higher stages of ego development are increasingly dialectical in character (Kegan 1982; Loevinger 1966).

Our own research with families and adolescents is consistent with the above findings, although it emphasizes experiential outcome measures. For instance, talented adolescents who perceived their family contexts as supportive and challenging reported more optimal experience and interest in their daily lives, especially while doing school activities; parents perceived by their sons and daughters as supportive and challenging reported more satisfaction in their relationships with their children and in their own lives (Csikszentmihalyi et al. 1993; Rathunde 1996). A follow-up study of a representative national cross-section of approximately 700 teenagers replicated these findings with a more diverse sample: after adjusting for the adolescents' gender, grade (sixth through twelfth), ethnic background (African American, Asian, Latino, Caucasian), and parental education, adolescents from supportive and challenging families reported more optimal experience and interest in school (Rathunde in press).

A family environment is challenging when parents expect adolescents to take on more mature responsibilities, learn new age-appropriate skills, take risks that lead toward greater individuation, and so on. Thus, a challenging context is one wherein adolescents acquire the training effect of discipline; they "practice" reorganizing their attention, being more objective, and formulating plans of action that accommodate progressively new expectations and goals. When a parent creates a supportive environment by listening in a nonjudgmental way, allowing the adolescent to explore interests, taking care of everyday necessities that might

be distracting, and so on, an adolescent can engage the world in a way that is less self-conscious, less constrained by the demands of reality, and more attuned to his or her own subjectivity.

A supportive and challenging context thus creates the ideal conditions for assimilating and accommodating and for optimal experiences that emerge when these two modes are in equilibrium. We have found some empirical confirmation for these assertions. Family support was linked specifically to more playful, spontaneous, and affectively charged experiences, and family challenge was linked to more directive, self-conscious, goal-directed states. To the extent that these experiential states are taken to indicate assimilative and accommodative processes, respectively, a supportive and challenging family exercises both aspects of the dialectic, and thus makes it more likely that adolescents can turn boredom and anxiety into flow or interest (see Csikszentmihalyi and Rathunde 1993; Csikszentmihalyi et al. 1993; Rathunde 1993, in press).

Parenting in Early Childhood

If adolescent experience is tied to conditions in the home, despite the greater influence of friends, school, and the media, it is likely that the quality of younger children's experience is *even more closely tied to conditions at home.* Barbara Rogoff's (1990) research is especially relevant to this issue. She has studied parents and children in a variety of cultural settings, using a Vygotskian perspective that emphasizes the development of mind through interpersonal interaction. The primary theoretical concept in her approach is the support-challenge combination of *guided participation:* "Guided participation involves adults or children challenging, constraining, and supporting children in the process of posing and solving problems—through material arrangements of children's activities and responsibilities as well as through interpersonal communication, with children observing and participating at a comfortable but slightly challenging level" (1990, p. 18).

The basic processes of guided participation are universal. In all cultural settings, parents and children must *bridge* to a mutual interpretation of a situation that allows *inter subjectivity,* or a common focus of attention and shared presuppositions (Rogoff et al. 1993). Thus, all parents use some measure of support and challenge: support to bolster children's attempts to master skills, and challenge to move children toward higher levels of mastery. Support and challenge must be skillfully proportioned by adults to help children avoid situations that are over- or underchallenging. For instance, support might be manifested by simplifying the structure of a task by breaking it down into subgoals, verbally relating new tasks to old ones, carefully following a child's gaze and attention, helping a child avoid frustrating obstacles, and so on. But as a child grows more skilled, the level of challenge could be raised by asking questions that seek more information, releasing some responsibility to the child, *not* intervening when children can be successful on their own, and so on.

A parent must carefully observe a child's cues to effectively guide participation: "Interactional cues—the timing of turns, nonverbal cues, and what each partner says or does not say—are central to the achievement of a challenging and supportive structure for learning that adjusts to the learner's changes in understanding" (Rogoff 1990, p. 104). A child might explicitly ask for more or less help, or signals could be implicit, involving a look, a gesture, listlessness, or gaze aversion. A number of studies reveal sensitive adjustment in action. For instance, effective tutors hypothesized what was the best level for intervention, and then modified their hypotheses based upon students' reactions (Wood and Middleton 1975). Mothers assisting 6-and 9-year-old children on a classification task began by giving redundant verbal and nonverbal information; as the session continued, however, their use of redundancy decreased and only reappeared when children showed difficulty or hesitation in solving problems (Rogoff and Gardner 1984). Finally, similar moment-to-moment dynamics were evident even at the university level when experts tutored students in the fields of chemistry, physics, computer science, and mathematics (Fox 1988a, b).

The benefits of guided participation emerge from maintaining a child/learner in the *zone of proximal development* (i.e., where the child is challenged slightly beyond his or her skill level, yet is capable of mastering the challenge with the help of a more skilled partner; see Vygotsky 1978). According to Rogoff, this zone represents a "dynamic region of sensitivity" where development occurs, and the skills of a culture are passed from one generation to the next. From a phenomenological perspective, we would add that a child's subjective experience within this zone is very close to the more optimal, intrinsically rewarding flow experience. In the zone of proximal development, challenges are slightly higher than skills, and the person experiences the slightly unpleasant state of *arousal,* which will change into flow if the person develops the next level of skills (Csikszentmihalyi and Rathunde 1993). From a phenomenological perspective, it is the attraction of flow that spurs the child to move out of the zone by acquiring new skills.

A number of studies confirm that guided participation is beneficial for children's development. For instance, it has been linked to infants' and toddlers' communicative competence (Hardy-Brown et al. 1981; Olson et al. 1984), to improvement in children's seriation skills (Heber 1981), and to greater exploration of novel objects by 3- to 7-year-olds (Henderson 1984a, b). Wood and Middleton (1975) found that when mothers tailored their instruction to their children's needs (i.e., guiding at a slightly challenging level, adjusting their instruction to children's successes, etc.), children performed more effectively on a task of building block pyramids. Interestingly, the number of interventions a mother made did not relate to performance; rather, it was the quality of the interventions that was effective.

While guided participation is a universal process, there are important variations across cultures in terms of the goals that are valued and the means to their attainment: "A major cultural difference may lie to the extent to which adults adjust their activities to children as opposed to the extent to which children are responsible for adjusting to and making sense of the adult world" (Rogoff et al. 1993, p. 9). The

former, *child-centered* pattern emphasizes parental accommodation to a child's level by joining the child in play, treating the child as a conversational peer, and so on. Such is the pattern described in the studies cited above, and it is the typical pattern manifested in middle-class families in the United States: "In the middle-class populations that have been studied, the bridge between adults' and children's points of view is often built from children's starting point, with adults building on children's perspectives by focusing on children's direction of attention and adjusting adult concepts to reach children's understanding" (p. 19).

When children are more embedded in the everyday lives and work environments of adults, they are responsible for accommodating to adults through observation and emulation. In this *adult-centered approach,* a child might be expected to speak when spoken to, reply to questions, or simply carry out directions, with adults providing helpful feedback in response to the child's efforts. This pattern has been observed in a variety of non-Western cultures such as in Kaluli New Guinea and Samoa, where children were expected to adapt to normal adult situations (e.g., caregivers modeled unsimplified utterances; Ochs and Schieffelin 1984). It has also been observed in some African American communities where children were not encouraged to initiate dialogue with their elders and held their parents' attention longer when remaining silent (Ward 1971), and in Eastern cultures, such as Japan, where parents stressed children's roles as apprentices to more experienced members of the community (Kojima 1986).

The goal of parenting in Polynesia, according to Martini and Kirkpatrick (1992), is to turn children into *'enana motua,* or "parent persons." To achieve this goal, socialization revolves around teaching children how to become competent householders and establish and maintain familiar relations at home, away from home, and in the broader community—while maintaining autonomy in a dense network of binding relationships. This complex balance between group participation and autonomy is further reinforced by the culture, starting with peer interaction among children (Martini 1994).

Rogoff and her colleagues (1993) argue that people from differing communities could benefit by synthesizing child-centered and adult-centered patterns of socialization. For instance, the child-centered approach in the West is thought to have benefits for developing the "discourse of schooling," whereas the adult-centered approach helps to develop children's observational skills. By encouraging skills of observation, the adult-centered approach might help Euro-American children to better coordinate their actions with others in a group; the child-centered approach, in turn, could help traditional communities, and some minority communities in the West, to access educational opportunities that open doors to Western economic institutions that rely on assertive individuality. Later in the chapter we discuss other benefits that may result from a synthesis of these two patterns.

Parenting in Infancy

A great deal of work on parenting in infancy helps to elaborate the theoretical dynamics under discussion. For instance, Field (1985, 1987) has suggested that whereas infants are born with genetic predispositions that make them differentially responsive to stimulation in the environment (see also Eysenck 1973; Freedman 1979; Izard 1977), mothers who learn their infants' stimulation and arousal modulation needs, *and who match their behavior accordingly,* provide optimal contexts for the development of secure attachment and self-regulation (see also Lewis and Rosenblum 1974). In other words, a mother modulates her behavior to match her child's need for stimulation or comfort, thus helping the child to maintain an optimal level of arousal. Under normal circumstances, mothers and infants even achieve a synchrony in their behavioral and physiological rhythms (Brazelton et al. 1974; Field 1985; Stern 1974).

When a mother fails to stimulate or comfort a child in appropriate ways, the child may withdraw from interaction, show gaze aversion, negative affect, elevated heart rate, or other disturbances; such infants, when hospitalized and removed from under- or overstimulating environments, often show improvement (Field 1987). However, if a mother *consistently* fails to develop a synchronous pattern that fits her child's needs, the child can experience behavioral and psychological disorganization, making him or her vulnerable to a number of later developmental problems. For instance, relationships have been reported between early interaction disturbances and school-age behavioral and emotional problems, including hyperactivity, limited attention span, and disturbed peer interaction (Bakeman and Brown 1980; Field 1984; Sigman et al. 1981).

Some infants (e.g., a preterm or Down syndrome baby) may be "harder to read" in terms of their arousal needs, but parents typically adapt and do a better job than strangers. Interaction coaching studies have also shown that parents can learn to be more sensitive interactive partners. For instance, when asked to mimic their infant's responses, mothers become less active behaviorally and more attentive to their infant's cues; in contrast, when asked to keep their infant's attention, they are less sensitive to infant cues and more active behaviorally (Clark and Seifer 1983; Field 1977). The former coaching technique therefore enhances a child-centered approach to parenting, and the latter technique encourages an adult-centered approach.

Intersubjective perspectives are also at the front line of attachment research (Bretherton 1987). Attachment theory suggests that infants and parents are genetically prepared for mutual negotiation and cooperative action (Bowlby 1969; for contrasting perspectives see Gottlieb et al., chapter "The Costs and Benefits of Consuming", this Volume; Thelan and Smith, chapter "Do Students Care About Learning", this Volume; Trevarthen 1979), and that even newborn infants are capable of experiencing a sense of emergent self-organization (Stern 1985). What is particularly useful about attachment research is the abundant empirical and theoretical work that has addressed how early interactions affect later child development. Attachment researchers hypothesize that the quality of the early

caregiver-infant interactions affects how children interpret their worlds through the development of a *working model* (see discussion below). In other words, basic styles of relating to the world are thought to be fundamentally connected to the interactive characteristics of early caregiver-infant interactions.

The term *attachment system* refers to a coherent behavioral-motivational system that is organized around a particular figure (or figures). Bowlby (1969) observed that the attachment system was *activated* by perceived danger and *deactivated* by safety. Bretherton (1987) contends that it is more helpful to think of the system as *continually active,* because this clarifies two distinct attachment phenomena: use of the caregiver as a safe base when there is perceived danger, and use of the caregiver as a launching point for exploration. Bretherton's conceptualization allows the attachment system to be seen on a continuum with other optimal arousal models discussed in this chapter. And like the other models discussed, the attachment system combines two "antithetical" human propensities: to seek continuity (comfort) in the face of overwhelming change, and change (stimulation) in the face of numbing continuity.

It is not surprising, then, that a support/challenge combination is also recognized as the most effective way to parent infants. *Secure attachment* is associated with care-giving that is supportive when it needs to be, yet challenging in terms of encouraging exploration and autonomy.[10] Such a balance helps create the synchronous patterns associated with secure attachment (Isabella and Belsky 1991), such as those observed in feeding situations, face-to-face interactions, responses to crying episodes, and many other types of interactive behaviors (Ainsworth and Bell 1969; Bell and Ainsworth 1972). Asynchronous patterns leaning toward over- or understimulation, on the other hand, have been associated with insecure attachment patterns (Isabella and Belsky 1991).

Because of the dependence of human infants on their caregivers, the latter have enormous influence on the patterning of intersubjective relations during the first year of life. Attachment theory suggests that from these relations children develop an internal working model of how the world works. Such a model serves a functional purpose: it represents reality as it is experienced and therefore allows the utilization of past experience to imagine alternatives and make decisions (Craik 1943). In an evolutionary perspective, working models provide a survival advantage to the extent that they permit more insightful and adaptive behavior (Johnson-Laird 1983). The adaptiveness of a model depends upon its correspondence to the actual world (i.e., what is represented has to simulate relevant aspects of the environment); the more complex a working model is, the more flexible are an organism's potential responses.

[10] The attachment literature typically describes optimal parenting in terms of a child-centered approach. This is underscored by the fact that most attachment researchers view material insensitivity as a mother's inability to *take the perspective of a child* (see Ainsworth 1983).

Based upon interactions with a caregiver, then, a child learns essential information about how self and other are related, and this information becomes a template for future interpretations. Distortions or disturbances in the interactive relationship result in distortions in processing information; because working models become automatic and habitual, these distortions can lead to relatively stable maladaptive patterns of development. Stern (1985) makes the provocative suggestion that when mothers consistently "overattune" or "underattune" to infant cues, they can *undermine infants' ability to evaluate their inner states.* From an experiential perspective, this result would seriously undermine later abilities to evaluate boredom and/or anxiety and respond in ways that promote flow experiences.

Also relevant from an experiential perspective are studies that show attachment patterns have carryover effects that influence children's *style* of engaging activities. For instance, secure attachment at 12 months predicted more adaptive communication in a problem-solving task too difficult for 2-year-olds to perform by themselves. Securely attached infants tried to solve the problem independently, but turned to the mother for help when they got stuck; mothers, in turn, comforted their children and helped them to focus on the task (Matas et al. 1978). Thus, the style of engaging the task reflected the style of interaction in a securely attached dyad (i.e., exploration in a context of support). It is also noteworthy that securely attached toddlers displayed more enthusiasm and task enjoyment.

In summary, several perspectives on parenting in adolescence, childhood, and infancy converge around the idea that parental combinations of support and challenge create optimal contexts for child development. Studies in each area, moreover, inform the phenomenological perspective in this chapter. Combinations of parental support and challenge were associated with adolescents' reports of flow experience in school (Rathunde 1996, Rathunde, in press); children's engagement in the zone of proximal development (Rogoff 1990); toddlers' enthusiastic task performance (Matas et al. 1978); and infants' optimal arousal (Field 1987). Common to all the perspectives reviewed was an emphasis on children's development through inter-subjective experience in the family; the historical roots of this perspective can be found in Baldwin (1906), Cooley (1902), Mead (1934), and Vygotsky (1962).

A deeper recognition of continuities across parenting studies is an important step toward more integrative theories of child development. One of the most important areas to explore, we believe, is how child-centered and adult-centered parenting use support and challenge to create optimal learning environments. In the West, it is often taken for granted that a child-centered approach is the best way to socialize children. However, adult-centered approaches are effective in different ways. We elaborate on this distinction next, and offer several hypotheses that we hope will stimulate future research.

Further Thoughts on Child-Centered and Adult-Centered Parenting

Children benefit when they have successful experiences with child-centered and adult-centered parenting approaches. The former, we believe, enhance children's efforts to differentiate the self through mastering *discovered* challenges,[11] and the later facilitates children's efforts to integrate the self through mastering challenges *presented* by significant others (see Csikszentmihalyi 1990, on "discovered" and "presented" challenges). In terms of the flow model, matching skills to either type of challenge could lead to flow; however, the lessons learned in terms of self-regulation are very different. Child-centered approaches guide children toward flow, so to speak, from existing skills to higher challenges, or toward equilibration on the path from assimilation toward accommodation. Adult-centered approaches reverse this process, putting challenges ahead of skills and accommodation before assimilation. Thus, successful child-centered approaches are more likely to strengthen children's self-regulative capacities to find enjoyment in an emergent sense of differentiation; successful adult-centered approaches strengthen the ability to seek enjoyment in integration.[12] Children who benefit from success with both types would presumably develop the most complex internal model of the world, one allowing the widest range of options for regulating arousal and instigating development.[13]

The above ideas provide a framework for future research, but we can offer some indirect support for them now. Our study of talented teenagers looked at talent development in the arts (i.e., athletics, music, and visual arts), and the sciences (i.e., math and science; see Csikszentmihalyi et al. 1993). According to the students we interviewed, the former domain was perceived as child-centered: teachers encouraged discovered challenges, student initiative, intrinsic motivation, and so on. In contrast, math and science classes were perceived as adult-centered: teachers presented challenges, required student compliance, and instilled extrinsic motivation. Child-centered instruction in the arts apparently created more

[11] Challenges are "discovered" by children when child-centered parents structure the environment in ways that are sensitive to children's interests and thus more conducive to a discovery orientation.

[12] Perhaps these two general patterns of socialization—one more suited for attempts to differentiate and "break" with tradition, and one more suited for integrative attempts to "build" on tradition—can help to explain the often-cited emphasis on individuality in the West and on social connection in the East. In addition, flow experience in the West is more often a private thing (e.g., in recreation or leisure), whereas flow in strongly adult-centered cultures (e.g., tribal cultures) is often a matter of public ceremony and ritual (see Turner 1979, on flow and ritual).

[13] To the extent that both parenting approaches characterize one home context, a child presumably benefits. It is also worth noting, however, that a synthesis of sorts might take place when a child gets experience with both patterns as a result of different contexts (e.g., home and school), or perhaps as a result of experience with different age playmates—sometimes having to "follow" and accommodate, and sometimes having to "lead" and organize others' efforts.

opportunities for differentiation than integration; students reported feeling good about what they were doing in class, but they did not feel that what they were doing was connected to their future goals. In contrast, the sciences created more opportunities for integration than differentiation; students felt that class activities were related to their goals (e.g., college and jobs) but less often felt personally motivated. Interestingly, those students who went on to develop their talents farthest—*across all of the talent areas*—reported personal enjoyment *and* the feeling that they were working toward important future goals (see also Rathunde 1993).

While child-centered and adult-centered approaches each build different strengths when effective, they may also lead to different weaknesses when they fail. For instance, a child-centered approach can fail in two ways: parents can overwhelm children with support whenever they show interest in something, or parents can let children select unrealistic challenges. As a result, two kinds of "failure" with assimilation and challenge seeking can occur: the former child will need the help of others to discover challenges (e.g., a child who depends on a parent to combat boredom and needs help in deciding what to do), the latter child will feel frustrated by a pattern of pursuing challenges that always seem out of reach (e.g., a child who deals with anxiety of piano lessons by quitting, selecting another instrument, quitting, and so on). An adult-centered approach can also fail in two ways: parents can prescribe behaviors and then make sure expectations are met through overly close monitoring and guidance, or parents can set expectations too high and fail to provide supportive feedback. These imbalances can lead to two types of failure with accommodation and solving presented challenges: the former child will feel dominated by social circumstances and unable to express individual interests (e.g., a child who passively conforms, following parental expectations blindly), and the latter child will feel frustrated and angry that it is so hard to please others (e.g., a child who rebels or rejects parental wishes).

Although child-centered approaches encourage differentiation and adult-centered approaches encourage integration, the above comments make it clear that *both* approaches can result in outcomes that isolate children from their social context or embed them too deeply within it. In each case, though, the detachment or enmeshment of children is qualitatively different. Conformity and dependence are both a type of Overintegration, and rebellion and disillusionment are both forms of overdifferentiation, but each outcome is unique, and each results from different socialization dynamics. An overly supportive child-centered approach encourages dependence, and an overly supportive adult-centered strategy promotes conformity. Conversely, an overly challenging child-centered approach, by allowing children to "get in over their heads" with unrealistic challenges, encourages disillusionment; an overly challenging adult-centered approach encourages rebellion from adult expectations. Put differently, dependence results when discovered challenges are too easy, and conformity when presented challenges are too easy; both problems are associated with overly "supportive" parents. In contrast, disillusionment results when discovered challenges are too difficult, and rebellion when presented challenges are too difficult; both problems are related to parents who allow children to be challenged beyond their capacities.

In summary, we propose that complexity in adulthood is aided by early social experiences that enhance the differentiation and integration of the self through mastering discovered and presented challenges, respectively. If a person develops through wearing masks on a cultural stage and performance suffers if the role is played mechanically according to script or, on the contrary, unrelated to the script at all, then a person—like a good actor—benefits from following a role from an existing script, but "improvising" on it to make it fit individual traits and interests. Our earlier examples of successful aging indicate how this is possible: complex persons can be traditional or iconoclastic, value continuity or change, be conservative or liberal, depending on what response best fits the situation.

Neoteny and Complexity: The Evolutionary Logic of Unending Childhood

Are the recurring themes in this chapter—the dialectic of assimilation and accommodation, the balancing of skills and challenges, the intersubjective dynamics of support and challenge, and so on—just instances of a selective ordering of information, or do they reflect something intrinsic to human nature? We believe that the connections made thus far between complexity in later life and its foundation in child development have a deeper meaning that can be discerned in an evolutionary framework. In keeping with the strategy of moving from maturity to earlier developmental periods, we take one final step "back," so to speak, to an evolutionary perspective on neoteny.

Neoteny refers to the retardation of development, especially that of the nervous system, such that infants are born relatively immature and must learn what they need to know to survive (Gould 1977; Lerner 1984). Compared to other primates, humans are considered neotenous because their rate of development from fetus to adulthood is unusually slow. In fact, adult humans even retain many of the physical traits of the human fetus, such as flat-facedness and minimum body hair (Bolk 1926). Huxley (1942) and others (see Montagu 1989) have suggested that neoteny "drives off" of the developmental timescale traits that have been a part of our evolutionary past (e.g., the heavier eyebrow ridges and projecting jaws of adult apes, of Neander-taloids, and so on). More important than the physical characteristics, Lorenz (1971) maintained that the behavioral outcomes of neoteny—the retention of childlike traits such as curiosity, playfulness, and flexibility, to mention just a few—are far more important. He concluded that the defining characteristic of humans was nonspecialization, allowing an *unending state of development* and an ability to change in response to new environments.

In his book *Growing Young,* Ashley Montagu (1989) concurs with this perspective and sums it up in the following ironic phrase: "The goal of life is to die young—as late as possible" (p. 5). He argues that we are biologically prepared by evolution to "grow young," or to emphasize rather than minimize childlike traits

as we mature. Although the importance of these ideas are known by a small group of social and natural scientists, Montagu asserts that the enormous ramifications of an *applied understanding of neoteny* have yet to be fully recognized. Such an understanding would explicitly recognize and nurture childlike traits, leading to adjustments in parenting and teaching philosophies; it would also redefine society as a system designed to extend the neotenous traits of humankind.

The universal manifestation of attachment processes provides deeper insight into the evolutionary logic of neoteny. Attachment discloses the fact that heavy parental investments in caregiving have a genetic underpinning (Bowlby 1969), and that human infants and their parents are biologically prepared for intersubjectivity (Papousek and Papousek 1987). In other words, parents and infants come equipped with the necessary skills for dialectic negotiations and joint meaning-making: "Humans are born with a self-regulating strategy for getting knowledge by human negotiation and co-operative action…. Thus socialisation is as natural, innate or 'biological' for a human brain as breathing or walking" (Trevarthen 1988, p. 39).

The concept of neoteny thus provides a unifying link among various parts of this chapter. First, it provides a rationale for the presumed goal of complexity in later life, the defining characteristic of which was unending development due to flexibility (see also Lerner 1984). The lifelong learners we interviewed can thus be seen as exemplars of the neotenous promise of human evolution. Second, the concept provides a way to link the idea of complexity with our observations about child development in social interaction. The trade-off in having a plastic versus fixed path of development is the enormous dependence that human children have on their parents (Gould 1977; Lewontin 1981). This dependence is illustrated by comparisons to other primates; humans give birth at a later age, have fewer young with each gestation, have longer gestation periods, lactate longer, and have fewer children across their lifetime (Altmann 1989; Johanson and Edey 1981). The human fetus is also expelled from the womb "early" because the evolution of brain size made premature birth necessary to permit safe passage through the birth canal (Montagu 1989). This almost total dependence of human infants on caregivers, and the genetic predisposition to form attachments, explain why "individual" development occurs within a social process.

How does this slow and steady "tortoise strategy" lead to adult complexity? And what about this strategy is connected to optimal experiences that we claim are so important for development? These final questions of the chapter are addressed by taking a closer look at the *opportunity for play* afforded by neotenous development. Of the many consequences resulting from this basic human predicament of prolonged dependence, we believe play says the most about human development. Neoteny provides infants with ample time to play in a relatively *unpressured* context; Bruner, Jolly, and Sylva (1976) add that play was favored by evolution as a pressure-free time during which adult skills could be imitated with successful solutions *that lead to pleasure.* The phenomenon of play thus contains the evolutionary logic of neoteny; a closer look at its character will reveal the essential connection among parental protection, optimal experiences, and the growth of complexity.

The Syntelic Character of Play

Baldwin (1906) has analyzed the character of play in a way that links it to the highest levels of human development. He refers to play as *syntelic* to capture its unique confluence of subjective and objective, inner and outer, characteristics:

> Both the inner freedom and the outer semblance must be retained [in play]; the latter gives consistency, pattern, dramatic quality, all that is meant by "semblance"; the former give control, selective character, essential inwardness (p. 114).
>
> The play object becomes not the inner or fancy object as such, nor yet the outer present object as such, *but both at once, what we are calling the semblant object,* itself the terminus of a sort of interest which later on develops into that called "syntelic" (p. 116).

Baldwin is suggesting in these comments that play opens up the opportunity for make-believe against a background of reality (i.e., real sense objects); both of these qualities— an essential inwardness and an outer semblance—must be present. If there is no reference in play to the external world, it becomes pure fancy, and it loses its interest and drama. On the other hand, if play is too reality dependent or compulsory, it again loses its interest, but for a totally different reason. Play must retain its character of self-illusion, what Baldwin calls a "don't-have-to feeling," that invests the object with personal meaning, inner determination, and a feeling of self-control; to a certain extent, this quality *tempers* the external control that would otherwise hold. Thus, Baldwin (1906) states, "Play is a mode of reconciliation and merging of two sorts of control…. For it provides for the relative isolation of the object and opens the way for its treatment by experimentation" (p. 119).[14]

It is this *syntelic* character of play that makes it crucially important and links it to higher forms of human thought. By allowing the oscillation between subjective and objective modes, Baldwin perceives a developmental link to the emergence of basic human dualisms (e.g., mind/body, self/other, truth/falsity) and the eventual *overcoming* of such dualisms with full development. The legacy of play can thus be seen in the syntelic character of Baldwin's highest form of thought, aesthetic contemplation. As illustrated earlier, his descriptions of aesthetic modes are remarkably close to contemporary perspectives on post-formal thought processes, and to our remarks on flow experience: "In aesthetic experience the partial insights of

[14] Analogously, one can think of the scientific process as syntelic, as an oscillation between theoretical (subjective) and empirical (objective) modes of "control." emergence of basic human dualisms (e.g., mind/body, self/other, truth/falsity) and the eventual *overcoming* of such dualisms with full development. The legacy of play can thus be seen in the syntelic character of Baldwin's highest form of thought, aesthetic contemplation. As illustrated earlier, his descriptions of aesthetic modes are remarkably close to contemporary perspectives on post-formal thought processes, and to our remarks on flow experience: "In aesthetic experience the partial insights of intelligence and feeling are mutually conserved and supplemented" (1911, p. 279). His perspective, though, adds insight to the developmental history of such outcomes; in other words, play is germinal of the highest forms of human thought as its syntelic character is elaborated and reinstated on higher levels of organizations.

intelligence and feeling are mutually conserved and supplemented" (1911, p. 279). His perspective, though, adds insight to the developmental history of such outcomes; in other words, play is germinal of the highest forms of human thought as its syntelic character is elaborated and reinstated on higher levels of organizations.

The essential benefits of playing, then, lie in the manipulation of information in a pressure-free context that is informed by external and internal determinants, but controlled by neither. Play can retreat from compulsion and the "have-to" state of mind, or escape from the irrelevance of a "don't-have-to" consciousness. Thus, play captures the same self-environment synchrony we described in flow experiences; in addition, the dynamics of both are similar. Berlyne (1960, 1966), for instance, viewed play as serving a stimulus-seeking function when the organism was bored and an arousal-decreasing function when the organism was anxious. Other theorists have emphasized the positives of one or the other function; for instance, Ellis (1973) viewed play as stimulus seeking, and Freud (1959), Vygotsky (1962), and Erikson (1977) thought of play primarily as a safe way to reduce tension by dealing with problems in a symbolic way.

Also like flow, play results in the differentiation and integration of the self. When it is exploratory, it generates novelty (Fagen 1976); when it is imitative (or repetitive), it builds habits (Piaget 1966).[15] Vandenberg (1981) likened these differentiating and integrating aspects of play to the functions of genetic mutation and DNA, respectively, in providing for biological diversity and continuity. Play may be no less important in providing for cultural diversity and continuity. A number of theories have drawn connections among play and human creativity, achievement, and flexibility (Bruner 1972; Rubin, Fein, and Vandenberg 1983; Sutton-Smith 1976). One of the strongest statements on the importance of play is given by Huizinga (1955), who saw in it the roots of our cultural institutions.

In conclusion, neoteny is connected to play through the establishment of an optimally stimulating context that is free of survival pressure due to parental investments of energy. Groos (1901) notes from an evolutionary perspective that *this period of human immaturity exists precisely for the purpose of play,* and there is a correlation between the length of play and an organism's eventual complexity (see also Gould 1977; Johanson and Edey 1981; Lerner 1984; Lewontin 1981). When flow experiences are seen on a continuum with play (i.e., as play reinstated on adult levels of organization), Groos's formula can be extended to flow experiences; in other words, *to the extent that adults continue to have flow experiences, their lives reflect a neotenous pattern of unending development.* This observation is consistent with our earlier examples of complexity in later life: these individuals regulated their attention in ways that promoted flow experiences and maintained the ability to "play" in adulthood.[16]

[15] An interesting research hypothesis is that child-centered parenting enhances exploratory play, and adult-centered parenting encourages playful imitation.

[16] In Baldwin's terminology, to "play" in adulthood means having *aesthetic experiences* that allow the reconciliation of the various partial truths (e.g., feeling and intellect, inner and outer).

Much can be learned about the development of the person by better understanding the social conditions that take advantage of a neotenous developmental pattern. Important clues about these conditions can be found in the attachment relationship between caregiver and infant. Unless otherwise plagued by problems of their own, parents are prepared by evolution to create a play space through adjustments of support and challenge that helps infants to regulate their arousal. It is not a coincidence, we believe, that optimal developmental outcomes in infancy, childhood, and adolescence are all associated with parental combinations of support and challenge; such combinations—to the extent that they create appropriate conditions for optimal experiences—are consistent with the evolutionary logic of neoteny. Thus, future studies that continue to uncover how families (or other contexts of socialization) facilitate optimal experiences and outcomes will inform the creation of social environments that are more consistent with our biological potentials.

Another area of research from which much can be learned about unending development is the study of successful aging. The examples of complexity used in this chapter illustrate that it is worthwhile to ask lifelong learners how they were able to stay interested and involved. Much research, however, remains to be done. Do "protective" social conditions still play a role in facilitating optimal experiences in late adulthood? How much of this regulatory function is (or can be) taken over by individuals through the internalization of supportive and challenging conditions they have experienced in their lifetimes? While the focus in this chapter has been on the individual's responsibility for negotiating optimal experience, it is certain that social conditions remain important. For instance, many of those we interviewed had the benefit of tenured or emeritus positions on a faculty; many had extremely devoted spouses; and most seemed free from financial worries. Further studies of successful aging can shed light on how personal instigative qualities, and social conditions, work to maintain the promise of neoteny. To the extent that insights gained are linked to child development, including the earliest moments of parent-child interaction, developmental theory will benefit greatly.

Conclusions: The Role of Experience in Development

Theories of development have tended to look at the individual as an organism propelled along the life course by external forces. From conception to death, individuals were seen as dependent variables who were a function of a host of independent variables: genetic programs, early environments and stimulations, social and cultural contexts. In opposition to such overly deterministic perspectives, recent approaches have emphasized the active, purposeful role of the individual in helping to shape his or her developmental trajectory (e.g., Magnusson and Stattin, chapter "The Ecology of Adolescent Activity and Experience", this Volume; Brandtstätder, chapter "Intrinsic Rewards in School Crime", this

Volume; Bronfenbrenner, "The Relationship Between Identity and Intimacy: A Longitudinal Study with Artists", this Volume).

The notion of personhood fits within this latter approach. It brings to the forefront of attention the fact that human beings come into the world exceptionally immature and must depend on a supportive social context to develop their full potentialities. The social context, in turn, expects the growing individual to display certain minimum competencies before he or she can be accepted as a "person." Perhaps the most basic requirements are that the individual be able to communicate with others and be able to play at least the most simple roles available on the cultural stage. In addition, each culture evolves expectations of optimal personhood that serve as the ideal goals of individual development. Some of these ideal traits—wisdom in old age, continued involvement in meaningful goals, the ability to retain control of the body and the mind—seem to be cherished across cultures and historical periods. Psychological complexity, or the ability to develop and use the full range of potentialities open to human beings, is also universally valued.

But why would the individual want to become a complex person? What is the motivation that propels an infant to become a competent child, a productive adult, a wise elder? Developmental theories do not deal with these questions, presumably because they assume them to be trivial. Infants grow into adults because they must, because they have no choice. They develop into complex adults if and when favorable circumstances make it possible. As long as one looks only at *distal* causes for development, neglecting such questions is reasonable. But explanations that only deal with distal causes and ignore *proximal* ones are incomplete. Such proximal explanations must deal with the motivations that prompt individuals to make autonomous choices along the life course. And to understand motivations we must take into account the quality of a person's experience.

A child who is overwhelmed by too many and too difficult opportunities, or who has learned to respond with apathy and indifference to an environment that lacks stimulation, might never learn to enjoy the active shaping of his or her experience. And yet only if one enjoys overcoming obstacles does one acquire *amor fati,* that love of being that lets an individual become a complex person. If one learns to experience flow with other people and also in solitude, through agency as well as through communion, through passion and through detachment, then it is likely that one will continue taking advantage of opportunities for self-discovery and self-organization when these become available.

So the central pragmatic question for development becomes: How do we help children learn to enjoy as many aspects of their lives as possible? How do we create contexts in the family, the schools, the community that will help children enjoy complexity? If we do not approach developmental issues from this perspective, we will miss the fact that to become active agents in their own ontogeny, individuals have to *want* to develop and become more complex. And they will want to do so only if they enjoy it. If they do not, development becomes alienated because the child as well as the adult will learn and grow primarily for extrinsic reasons. The child will study to graduate from school, the adult will work to get a paycheck and be promoted, and both will endure their present conditions listlessly,

in anticipation of a more pleasant future. This is not the kind of developmental trajectory that leads to complexity, or to a desirable old age.

By contrast, development is intrinsic if a person feels that every moment of life is worth experiencing for its own sake: if one feels fully engaged, fully present while eating and sleeping, studying, and watching television; if one enjoys being with friends; if one finds exhilarating even being hassled or being involved in conflicts and arguments. And *complex* development is intrinsic if a person learns to enjoy learning, meeting new challenges, overcoming obstacles, unfolding potentialities for being that are not naturally easy to use. When a child can enjoy both quiet and adventure, solitude and gregariousness, discipline and spontaneity, cognitive convergence and divergence, then he or she will *want* to become more complex. Whatever we can do to facilitate that kind of development will benefit the community as well as the child who is about to become a person on its stage.

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Chapter 3
Life Themes: A Theoretical and Empirical Exploration of Their Origins and Effects

Conceptual Definition

Whenever a person's life is passed in review, either in an autobiography, a biography, a psychohistory, or a clinical report, a more or less implicit assumption is made that the life in question has a certain coherence, a form and purpose which is in some way uniquely different from that of others (Bühler and Massarik 1968; Pascal 1960). In fact a biography would be unimaginable if the life events of a person followed each other randomly or if they were determined only by the vector forces of genetics and social milieu. The assumption behind any biography is that the subject's actions over time reflect a unique theme played out against a wider background of historical themes.

Although several "holistic" psychologists have recognized that the continuity in a person's life is at least in part the result of a creative structuring of goals and means, it is fair to say that this insight has not been developed enough in recent years to become a vital component of contemporary psychological investigation and explanation. The reason seems to lie in the fact that no detailed account of the mechanisms by which persons develop a unified life theme has yet been provided. It is our intention to present some case histories that suggest the steps of this process and the principles that might be involved. Although individual creativity often plays a role in the selection of a life theme, we seek to explore how the components out of which such a theme is built are extracted from the sociocultural milieu. In order to explain the emergence of life themes one must specify the patterns of symbolic interaction that allow persons to use cultural models for building a personal history. What we mean by a "life theme" is in some ways analogous to similar concepts used by Adler, Allport, Murray, and Sartre. For instance, Murray (1938) was led to posit the existence of a *unity-thema* in the case

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histories he studied. Although he stated that no isolated response from an individual can become meaningful unless it is related to the total unity underlying all of the responses, Murray did not discuss systematically how the unity thema develops ontogenetically. In a similar vein, Allport (1955) used the term *proprium* to describe those "aspects of personality that make for inward unity [p. 40]." Of the eight aspects he includes in this concept, self-identity and propriate striving seem to be closest to our notion of life theme. For Allport the proprium is a more detailed definition of "self"; but again, the process by which such a unified pattern of experiencing and responding comes into being was not examined in detail. The process by which personal goals become objectified is called the *project* by existential philosophers and psychologists (e.g., Desan 1965; Sartre 1956), but again the mechanisms by which projects develop have hardly been studied. Other recent approaches that rely on a purposeful unified view of personality are the ones that focus on *coping* (Coelho Hamburg and Adams 1974); on the *family theme* (Hess and Hendel 1959); on *self-actualization* (Maslow 1954, 1971); or on *identity* (Erikson 1962, 1969).

Perhaps closest to our present concern is the concept of *life style* as developed by Alfred Adler. He believed that people's behavior is directed to a final goal, which each person builds up in the course of life (Ansbacher and Ansbacher 1956). This over-arching goal can be a purely fictional construct, in that at least at the manifest cognitive level it may have nothing to do with the needs, drives, or other determining forces in the person's experience (Ansbacher and Ansbacher 1959, p. 90ff; Hall and Lindzey 1970, p. 121ff). Of course for Adler the underlying determinant of the final goal is the universal feeling of inferiority. The fictional life goal people construct to compensate for their inferiority feelings will dictate the lifestyle that unifies their later experience and behavior.

Adler's interpretation of what gives unity to a person's life is in many ways similar to our own interpretation of the life histories we examined. There are two main points on which differences emerge. The first concerns assumptions about the motivation underlying the development of a final goal, life style, or life theme. "Inferiority feeling" seems to us both too narrow and too general a term to account for the unification of personality. We prefer to investigate the concrete nature of those childhood events which resulted in a person developing a coherent, purposive attitude toward life.

Another important difference between our position and Adler's is that he sees the life style emerging from the child's own choices: "The doctrine of the creative self asserts that man makes his own personality (Hall and Lindzey 1970, p. 127)". The child, striving against the burdens of his inferiority, "within the incalculable realm of his possibilities (Ansbacher and Ansbacher 1956, p. 187)," might create a fictional goal which will serve to give direction to his life. While we share Adler's liberating concept of individual autonomy we are impressed by the way in which human beings as they develop learn to use symbolic codes from their sociocultural environment. It is with the help of such codes that people eventually create meaningful goals for their lives. Therefore we wish to study how cultural inheritance is used as the matrix for life themes. We expect that people have differential

access to cognitive models in the culture, and that this difference affects the development of their life themes.

This article explores the life theme concept at a theoretical level, and then presents some empirical material to support the proposition that personal themes can be recognized in people's lives; that they are crucial for understanding behavior over time; and that it is possible to study the origins, developments, and effects of such themes in the lives of people.

A life theme is defined as the affective and cognitive representation of a problem or set of problems, perceived or experienced either consciously or unconsciously, which constituted a fundamental source of psychic stress for a person during childhood, for which that person wished resolution above all else, and which thereby triggered adaptive efforts, resulting in attempted identification of the perceived problem, which in turn formed the basis for a fundamental interpretation of reality and ways of dealing with that reality.

In a more compressed form, the definition would read: *A life theme consists of a problem or set of problems which a person wishes to solve above everything else and the means the person finds to achieve solution.* A problem does not need to be conscious. The solution need not be actively pursued to qualify as part of a life theme. If a person invests more attention on that problem than on others, this meets the definition, in as much as attention invested is a good measure of the relative salience of problems (Csikszentmihalyi 1978). Focus on a problem may be accompanied by the belief that certain strategies of action are more suitable than others for solving it. The result is a hierarchical system of affective, cognitive, and motivational elements which plays a central role in individual psychology.

The pattern of development in life themes was originally suggested by a longitudinal study of artists (Getzels and Csikszentmihalyi 1976). That work showed how artists use the medium of visual representation to help themselves discover, formulate, and resolve in symbolic form some central existential concerns which were causing intrapsychic stress. Creative artists tended to find inspiration in deeply felt personal experience, while less creative artists used culturally defined problems as sources of inspiration.

Recognition of an Existential Stress

Extrapolating from these findings with artists to people in general, the first step in the development of themes would be the recognition of an existential stress in one's life. Already at this point, vast differences among people are bound to arise. In essentially the same situation, different individuals recognize different configurations of stimuli as being stressful. A person living in a lower class environment might find poverty the main source of stress, whereas another might react to loneliness, marginality, or social injustice instead. Which pattern of stimuli will be recognized as most stressful does not depend exclusively on the "objective" characteristics of the stimuli, but also on the pattern of affective and cognitive

"coding" available to the person. Differences in coding patterns presumably reflect basic differences in the cognitive structure of interpersonal systems in the person's immediate environment, mainly his or her family. For example, if the person's primary reference group labels the stress as due to poverty, economic issues will be experienced as stressful; if the emphasis is placed on inequality, then injustice will tend to provide more stressful experiences.

Finding the Problem

The next step appears to consist in finding the problem. At this point, the person uses the available codes or discovers within the social environment new ones for coding the diffuse sources of stress with a label that identifies the problem. The problem might range all the way from, "Where is my next meal coming from?" to, "What is the meaning in the order of the Universe?", both of which appeared as central themes among several of our respondents. Finding a label for the main problem begins to structure the dynamic hierarchy of the life theme. It is now possible for the person to perceive his or her environment in a consistent way, to interpret events in terms of an underlying causal order behind seemingly uncorrelated phenomena.

Stating the Problem

The next phase involves stating the problem in a form that will allow solution. For instance, one person might attribute loneliness to lack of warmth in the family, or to psychological differences between self and others, or to the fragmented character of urban life. Each attribution suggests a different line of solution. The person in the first case might wish to develop a warm family life when he or she grows up. In the second case the person might search for a reference group of like-minded peers. And in the third he or she might eventually leave the city or work for its change.

Method of Solution

The last step involves attempting a method of solution for the main existential problem. It is at this point that one person who has focused on poverty as the main problem may engage in criminal acts, whereas another will save money and go into business, or become an economist, or a writer who in his novels exposes the oppression of the poor. Which method is adopted presumably depends on what skills the person can learn from his or her environment. Artists, for instance, start

with a variety of existential problems, but they all share the method of symbolic visual expression as a way to solve them. It often seems to be the case that one's occupational career choice corresponds with the chosen method for solving a central existential problem.

Progress through these four steps results in the affective and cognitive gestalt we are calling a life theme. Obviously the process is not as clear and sequential as outlined above. Often the person cannot verbalize the elements of such a theme, yet his or her actions and words only make sense by assuming that it does indeed exist. It is probably not too controversial to state that famous people about whom biographies are written, or artists, have developed such life themes. But is it reasonable to suggest that the psychic energies (e.g., attention over time) of average people are ordered in a similar way? The interviews we collected address that question.

Thus far we have described what the life theme is supposed to be on a conceptual level. The obvious question is: Does it exist in reality? In other words, is there empirical evidence that can be adduced in support of this concept? And if there is, does the use of the concept reveal regularities in behavior that would not otherwise appear? The next section will deal with these questions. In the last section, we shall discuss how the life theme concept may illuminate some important issues in psychology, and what new questions it might suggest.

An Empirical Approach

Procedures

To get a first approximation of the existence and range of life themes, Beattie collected life histories from a sample of thirty adults. Each interview lasted from 1 to 3 h. In general, the questions aimed at eliciting, in the respondents' own words, the salient events and experiences which they considered to be formative in their lives. No suggestion was made to the effect that we expected a theme in such events or that there should be a central existential problem and a solution to it. The questions were of the following kind:

> I've been interested recently in the question of life influences—what kinds of influences do people consider critical in their lives—or what are the life factors which most shape a person's life-and so on. So, that's the kind of thing I would like to hear from you. Thinking back on your own life, what are the things or kinds of things you remember as being influential? In order to help structure this interview, why don't you start with where and when you were born. Tell me a little about your parents—what they did and what they were like—and about your early environment. Work your way up to the present time in terms of influences in your life.

In addition, respondents were asked about their parents' ambitions and expectations for the respondents' futures, and about the role that books and other cultural models played in the outcome of their lives:

Did your parents expect you to do well in school? What was their attitude toward school and school work? If you got a good or bad grade what was their response?

Did your parents ever say to you when you were little anything about what your future could or should be like? Did they have any image of you in the future?

Did your parents ever read to you as a child? Tell you stories?

The respondents were all males, white, ranging in age between 36 and 75 years, with a median of 50 years. The sample was divided into two equal groups on the basis of occupation. Fifteen respondents were highly successful professionals—professors, a cabinet member, outstanding physicians, all connected with university teaching. The other fifteen were blue-collar workers—plumbers, policemen, and steel workers. The reason for this division was to see if patterned and systematic differences would emerge in life themes between the two groups, holding socioeconomic class of origin constant.

The two groups were matched as precisely as possible in terms of background characteristics. The mean socioeconomic status of parents was almost identical for the two groups and the incidence of severe disruptions (death of parent, alcoholism, and so on) was very similar. In fact, it was slightly greater for respondents in the first group. Therefore the professional sample is composed of upwardly mobile individuals who, starting from lower-class origins, moved up to a professional status, while the blue-collar group remained essentially stable. The role of life themes should be particularly interesting in the case of these upwardly mobile persons. Ethnic and religious origins were also comparable, although the professional group was 33 % Jewish, 40 % Protestant, and 27 % Catholic, while the blue-collar group was 13 % Jewish, 46 % Protestant, and 41 % Catholic.

The interviewer took extensive notes which were later transcribed. The case histories thus obtained were then analyzed according to the following criteria: (a) Did the respondent describe events perceived as problematic in his childhood which influenced his future life? (b) Did he formulate such events as a problem? (c) Did he attribute a specific cause to the problem? (d) Did his later life address the problems directly-although not necessarily consciously; was his occupation related to the solution of the problem? And finally, (e) what experiences contributed to the formulation and solution of his existential problem?

Results

Two-thirds of the respondents in each group reported problematic events to which they attributed a strong influence in their lives. In this respect, the two groups were similar. Both professional and blue-collars vividly remember poverty in their early years, in addition to the pain associated with death, divorce, or alcoholism in the family. Ten of the upwardly mobile and ten of the stable lower-class respondents suffered from at least one form of disruption. The remaining five in each group mentioned no major traumatic event. For these men the closest thing to it was the

excessive demands they felt their parents were placing on them in childhood. Parents "pushing" their sons to "do well" were reported as a source of anxiety by all five professionals without family disruption and by three of the five blue-collars.

If the objective nature of the existential issues confronting the two groups of respondents was very similar, the way the two groups subjectively formulated the nature of the problems was very different. The professionals tended to generalize their personal stress into a more or less universal problem, whereas the blue-collars responded to the stress in a more concrete and personal way.

John

For example, John, a member of the professional group, had been hit by a car while riding a bicycle when he was 8 years old. He was seriously injured. The fault was the driver's, who had ignored the traffic signal. The driver of the car was a woman physician and she rushed John to a hospital where she took care of him, but without telling anyone that she had been responsible for the accident. She also convinced John's parents, poor immigrants from Slovenia, not to involve the authorities. The family ended up by paying for three weeks of hospital expenses, a new bicycle, and the medical fees of a hit-and-run, without getting any compensation in return. John said:

> My poor parents could hardly speak English and had no way to cope with the sophistication of the woman doctor. They had no idea how to do anything.
>
> They had no idea about insurance, liability, and so forth. So they ended up being taken in just like that— and paying and paying when they shouldn't have been paying at all. They ended up paying a woman who almost killed me. When I saw all these things happening, I didn't know what to do either, but I knew something was very wrong in the way things had worked out. So I vowed that I would know the law regarding what rights an accident victim had, and so forth, as soon as I could…. I very early extended this to knowledge and curiosity regarding the law as it relates to minority groups. It was the immigrant status of my parents which put them at a disadvantage.… So I knew that it was important for minority group members to have someone advise them of their rights before the law….

It should be noted that only in three cases was the traumatic childhood event as clearly identified as it is in this quote. In the remaining histories, the structure of the problem must be reconstructed indirectly, since the respondent was not himself aware of its ramifications.

From the quote above we see that the car accident, which was a traumatic event in John's life, becomes associated with the other problems that the poor immigrant family faced, and thus it developed into the nucleus of a central existential problem: *something was very wrong in the way things had worked out.* Once the problem is formulated John identifies its causes: *It was the immigrant status of my parents which put them at a disadvantage.* After the problem is stated in this form, a solution presents itself: *I… extended this knowledge and curiosity regarding the*

law as it related to minority groups. This attempted solution led John to a degree in Law, later to another one in Economics, and finally to various posts in government, where he consistently upheld the rights of minority groups.

But at this point we only wish to point out the peculiar form in which John first formulates the problem. He does not react to the accident only as a personal threat. Instead he identifies his personal plight with that of his family, and then with the plight of "minority groups." This generalization of the problem allows John to find a method of solution which is valued by others because its self-interest is merged within a broader social interest. Instead of vowing to avenge himself on the woman doctor who had caused him insult and injury, he says: "So I vowed that I would know the law regarding what rights an accident victim had as soon as I could."

In 14 out of 15 life histories of those men who became successful professionals, one finds that the problems of early life were formulated in this generalized way. The personal stress tends to become transformed into a problem that affects other people, or humanity as a whole. It is nothing but a cognitive transformation, yet one that appears to have powerful consequences. As soon as personal stress is seen as part of a more universal problem, it becomes easier to pursue the solution by structuring one's action around a life theme.

Harry

Only three out of the fifteen blue-collar respondents mentioned anything resembling a generalization of their personal stress patterns. Most of them said from childhood on their main preoccupation was to know where their next meal would be coming from, to which later was added the question of where the next sex, or the next car would come from. Even the three respondents who identify a more basic problem, keep its formulation at a concretely personal level.

For instance Harry, whose father died when he was 8 years old, remembers the near starving poverty of his childhood and his mother's constant admonition: "I hope you will find a way to have enough money when you're older… and to have it in cash." He identified the problem as *poverty*, and its cause as *lack of thrift.* So, he spent the rest of his life saving money. *Thrift* became the solution around which his life theme emerged. At 15 years of age he quit school and went to work in the steel mills. He did not smoke, but he saved his pennies to buy cigarettes which he sold at a small profit to Black workers when they ran out of their own. He "bought things cheap and sold them expensive" whenever he could. By age 25 he owned two apartment buildings, by age 40 he owned five. He never married, wears old clothes and drives an old car, still works in the steel mills at sixty, although by now his savings account amounts to almost half a million dollars.

In many ways Harry has been successful, and he certainly did structure his life according to a coherent life theme. What makes his theme different from that of John is that the personal problem remains personal. It is not seen as part of a larger issue. Therefore the method of solution remains the same as it had been in

childhood: the saving of money is the answer, even when the problem is no longer there.

Significant Problems of Childhood

What kind of problems are remembered as having played a significant role in childhood? Professionals mentioned *isolation* and *marginality* most often, followed by feelings of concern and *anxiety about performance.* They remembered worrying about not being good enough, about not living up to expectations. The blue-collar respondents most often mentioned concrete problems of *physical survival*, like hunger and poverty. This difference is intriguing because objectively both groups appear to have suffered equally in childhood. The men in the first group, however, seem to have learned to redefine the problem in terms that went beyond the objective concrete factors of what was wrong.

The major difference between the two groups revealed itself in the attribution of causality respondents made for their early life problems. Whereas fourteen out of the fifteen professionals described specific causes, only three of the fifteen blue-collar workers did. Moreover, twelve respondents in the first group attributed their problem to *ignorance*: lack of reason, perspective, specific knowledge, or ignorance about how "things" fit together, how "self" fits in the world. None in the second group mentioned anything like it; all three who attributed causality blamed their problem on some *character deficiency*: lack of thrift, self-control, and the "basic bestiality of man."

Attributing causality to the basic existential problem acts as a link in the life theme between the early stress and the later coping strategies. If a person identifies (consciously or unconsciously) the stress as being caused by ignorance, then that points to a solution involving increase in knowledge, and hence an intellectual career. If the cause of stress is seen to be lack of thrift, then that implies a solution that involves saving. Finally, if a person fails to formulate his life theme around any solvable problem, then obviously he cannot attempt to solve it either. There being no known cause to the "problem," there cannot be any solution. Therefore the occupational life-activity of the blue-collar workers, who usually do not attribute causes to their problems, often seems to lack connection with their early experiences and the problems they had confronted at that time.

What is, then, the connecting thread in the life of the blue-collar workers? The interviews suggest a certain continuity between childhood and occupation, but one that seems qualitatively different from the continuity present in the other group. In the first place, five of the blue-collar workers end up working at jobs their fathers held. The remaining ten take jobs which give them a certain amount of material security and pride. In this sense their lives become meaningful because their work activity is a solution to the issues of survival and personal worth. However, this solution is not the result of a personal discovery. It is more an acceptance of culturally sanctioned solutions which happen to be available. To use the terms

Marx uses in his early *Manuscripts*, the work of the blue-collar respondents is *external* to them, while the work of the professionals is *essential* in that it is an integral part of a life theme which the person had discovered and formulated on his own. (Needless to say, these findings run counter to the Marxist argument in that they show early socioeconomic conditions need not determine consciousness.)

George

George remembers that as a child, his father thought he was a sissy, and insisted that he become more masculine. He also used to have beautiful blond hair which his mother kept long and people admired. Now in his late thirties, George is a policeman, one of the best shots in the county. But his hair is thinning out, so he has saved up money for a hair transplant to please his mother, who at 55 still has her gorgeous blond locks. The theme in George's life hasn't changed much in 30 years: he has fulfilled his father's ambition for rugged masculinity while he still tries to satisfy his mother's image of a golden boy.

Sam

Another respondent, Sam, comes from a family in which father and four uncles were all plumbers. His father had focused his life on two interests, plumbing and football. Sam followed in his footsteps; he became captain of the same high school football team his father had led (even though it involved walking halfway across the city), and later he became a plumber. He now says:

> I've been thinking about football as long as I can remember. Football means a lot to me. It's on my mind a lot. I'm upset when certain games don't come out certain ways. And I didn't give up my dream altogether because I coach a lot at the Methodist church. I'm the Little League football coach, and I just love doing that. You could say that I've had my cake and am eating it too—but on a smaller scale football-wise than I would have dreamed of.

Both these men are leading satisfying lives, according to themes established in childhood. It does not seem, however, that these themes were "discovered," or developed by the person himself. Rather, it seems that they had been accepted more or less ready-made from models in the family. The upwardly mobile professionals, on the other hand, after a long struggle, end up discovering a link between their personal problem and a more general human condition. At that point they are ready to work on a solution which is an essential expression of their past experience. We have seen in John's case the connection between a childhood accident and a later Law degree and government career.

Max

Another example is the case of Max whose mother had to board him with a family in a distant town at 4 years of age, after the parents were divorced. Max grew up in various foster homes in Europe, traveling on a stateless passport. All through his childhood and teens, Max felt himself to be an outsider, without a country and without a family. When he was 13 years old, he happened to read two history books that helped him to formulate his existential problem, and pointed him toward a solution:

> When I was reading Van Loon and Burkhardt, I knew that something important was happening in my life… because while reading them I was knowing that I had found a way to view the world. These two books… determined what questions I asked about life and from what perspective I viewed life thereafter.

This happened because the historical perspective of these works helped Max to place his homelessness and statelessness into perspective. He found in history a wider context than the concrete time/space location which had rejected him. Although a man may have no place here and now, he has a place on the stage of history. This thought liberated Max from his loneliness and powerlessness. Max went on to become an eminent historian.

Patterns

In practically every protocol obtained from the professional group, the same pattern emerges. The child or young man is confronted by deep stress and questions that threaten his psychic survival. At some point he gets an inkling that what disturbs him is part of a more general human problem. Often this recognition occurs with dramatic suddenness. Once the connection between the personal existential problem and the wider issues is established, a method toward its solution suggests itself. The person has a lifetime's work cut out for him, although he is not always aware that his actions are related to the original problem.

One objection to this interpretation might be that in reality no such themes ever existed in the lives of the respondents we interviewed. It is a well-known fact that people, often inadvertently, tend to re-write their own biographies in their heads, so as to achieve a fictitious congruence between past and present. Thus one might suggest that the lives of our respondents were in reality ruled by chance or by determining factors outside of their awareness. Only in retrospect was a neat unity of purpose imposed on the life histories by the respondents themselves. The meaning is not in the life events, the criticism goes, but in the recollection which edits the past.

We are sympathetic with the healthy skepticism on which such objections are based. What is more, we share it. Nevertheless, after much debate we have come to accept the reality of most of those events that in the life of our respondents led to the development of what we called a life theme. It is true that the respondents in the

professional group, most of whom are nationally known figures in their respective fields, might in fact have developed personal "myths of origin" to justify their success to themselves and others. But this is not likely for several reasons. First, the events leading to the formulation of the problem were generally such concrete events that it is unlikely the respondents would have made them up. It would be carrying skepticism too far to doubt the memory of a leading oncologist about his mother's death from cancer, or to doubt a foremost expert in military affairs when he recalls that his parents had to flee Europe because of their anti-war activities.

Second, where distortion could occur is in the recollection of how and when the cause of the life problem was discovered, and hence the path toward its solution was first glimpsed. Here again, however, the respondents provided such a wealth of vivid detail, that if one doubted the event, one would have to accuse them of outright lying. The time and place at which the "discovery" was made were described with great precision, even when the respondents did not see any causal significance in such discovery. In several cases, these successful professionals could still pull off their shelves and show us the dog-eared volumes that had made a difference in their lives 30 to 50 years earlier. Although it is inevitable that a certain amount of romanticizing has gone into the editing of these life histories, we came to believe that their essential dynamics are real. The purpose was there in the developing lives. It was not added later to give meaning to an otherwise random series of events.

How does it happen, then, that some people develop a "discovered" and others an "accepted" life theme, that some find a solution which is essential to their whole experiential gestalt, while others find one which is relatively external to it? There are glaring differences between the two groups of respondents which point at some possible causes.

It seems that the parents of future professionals, no matter how poor, ignorant, or desperate they were, tended to project a successful career image for their sons. This expectation was rarely specific to the extent of confining or determining the child's future, but it was enough to help him identify a possible course of action. Max's mother insisted that he become either a doctor or minister (he became a historian). The parents of Richard expected him to become a prosperous businessman; he became a professor of ophthalmology instead. In contrast, blue-collar respondents can't remember their parents having ideals or goals for their future, except to the extent of following in their father's footsteps. Here is what Burt, a welder, says on the issue:

> I never thought about what I was gonna be when I grew up, and neither did my parents think about it. Just so we were honest. We just took it from day to day. But they were strict about being honest—and they insisted that we work hard on a job and finish what we started. But they never had an idea of what that job should be.

And Theodore, a service clerk in an industrial plant:

> You keep asking me what I was thinking about when I was little and I keep telling you that I wasn't thinking about nothin'. What's there to think about? Survival—that's what I was thinking about. But when you have enough to eat and a roof over your head and everyone is clean and honest-living—that's enough. What more is there to think about?

The interviews show that while all fifteen professionals remember one or both parents expecting them to improve their station in life financially or intellectually, only three of the blue-collar sample did.

Parents of the professionals were not only more ambitious, but they actively helped prepare the seeds for their sons' life plans. Although poor and frequently semi-illiterate, they often read to their children in infancy, or at least told them elaborate stories (twelve of the fifteen professional parents did so, only four of the blue-collar workers). Even those who did not read encouraged their children to do so (all in the first group did, five in the second). As a result, fifteen out of the fifteen professionals remember reading in grammar school in addition to class requirements, while only two of the fifteen blue-collar workers did the same.

This becomes important because it is often through reading a particular book that a young person discovers the name of his problem. In many cases, respondents mention with awe the incredible impact a given book had on their life. Between the ages of eight and nineteen they discover from one book or another that they are-not alone, that their plight is shared by others, that there might be a way out of their predicament. Russell's *Principia Matematica*, the Horatio Alger books, the science fiction work, *Fahrenheit 451*, were all mentioned by different people as milestones in the way they came to experience and interpret reality.

Reading never played any part in the life themes of the blue-collar group. Movie actors, sports stars, and public figures like Charles Lindbergh are occasionally mentioned as admired ideals, but books: "No—they never made a difference in my life [Burt]." The only blue-collar respondent who even remembers a book he read in childhood is Walter, a cut-rate carpet salesman whose father had been a banker:

> I liked that book (*Wind in the Willows*), I'd say that was about the most meaningful book in my life because of the feeling it gave me. I felt so peaceful when I read it. It's about these animals that are raised to the status of people. But as people-types they don't have to compete. They live this idyllic happy life, and they don't have any of the pressures that people have.

The quote suggests that *Wind in the Willows* did play a role in Walter's life theme. It helped to justify his downward mobility by showing how idyllic it was to lead a life without competition and pressures. But this is very different from the use the upwardly mobile respondents made of their readings.

Conclusion

The interviews seem to justify the claim that life themes are an important aspect of the adaptive strategies people develop through their life cycle. Many questions are raised by the exploratory study concerning how early existential problems are formulated, how causes are attributed to them, and how solutions are attempted. It is clear that the cognitive process by which the problem is stated, especially its

level of generality, makes a great difference in terms of the unfolding of a person's life. It is also clear that the form this process will take depends, to a large degree, on the cognitive milieu of the family of origin. The personal theme is nested within the family theme. Objective socioeconomic conditions do not completely determine the future of a person. The cognitive attributions that develop within the family to interpret and give meaning to those objective conditions will greatly affect the structure of a person's coping pattern. What are the broader implications of this developmental process?

Discussion

The results reported above suggest the existence of a process which has important consequences for the patterning of human behavior. The central propositions that have emerged from this investigation may be summarized as follows:

1. The events in a person's life may be interpreted as being structured by an underlying theme.
2. The life theme is a cognitive and affective system composed of a central existential problem, its perceived causes, and the methods a person attempts to use for its solution.
3. The main dimensions along which life themes vary are: (a) The extent to which the central problem is "discovered" as opposed to "accepted," and consequently the extent to which the solution will be "essential" as opposed to "external." (b) The extent to which the problem is generalized, which determines the extent to which the solution will be generally useful as opposed to being more egocentric, (c) The clarity of its formulation; that is, the extent to which problem, cause, and solution are part of the same pattern, and the extent to which the person is aware of them, (d) The kind of symbolic system which is used to code the existential problem. This in turn decides whether the person will try to solve the problem through the symbolic system of financial success, or through that of mathematics, the law, medicine, and so forth.
4. The structure of the life theme is established by a matrix of early experiences, especially by the cognitive coding used in the family. The definition of the problem, its causes, and possible means of solution are facilitated by the patterns of explanation taken for granted in the family, which makes up the person's first and in many ways only coherent "symbolic universe (Berger and Luckmann 1967)." Later on other cognitive matrices may define more clearly the elements of the life theme—significant events, people, and books—especially if the latter are congruent with the cognitive structures formed in the early family setting.

Further Concerns

These four main conclusions are tentatively suggested by this study.They in turn lead to a number of further questions. For instance, the steps by which different life themes develop need further investigation. How is a person led to discover existential problems instead of accepting ready-made ones? What are the exact conditions under which a person will generalize his personal problem? What is the process by which a personal stress gets translated into a symbolic form which allows for solution?

One point that might need clarification is our statement to the effect that a person's adult life, including his occupational activity, becomes a "solution" to the original existential problem. This is true in the sense that one can find a logical, although often symbolic, connection between the foremost childhood concern and adult career patterns. From this it can be surmised that involvement in such patterns was determined, consciously or unconsciously, by the relief they provided to the existential problem. But it would not be correct to say that a person keeps working in an occupation because this helps the solution of his childhood anxieties. Once a person begins to act within a symbolic medium—be it science, art, or any other occupational role—the problems of that medium will present their own challenges that must be resolved. The historian will begin to be concerned with the problems of his or her profession, the physician will have to cope with the problems presented by his or her specialty. Quite soon, the problematics of one's career may become autonomous from the original constellation of existential problems. At that point, the symbolic medium itself could provide its own motivation. Whether the connection with the original problem remains crucial or not after a certain point is one of the questions that needs to be pursued further. Perhaps the "mid-career crisis" is the point at which professionals realize that their work has ceased to be relevant to their life theme.

Probably the main issue raised by our study concerns the importance of cognitive coding of affective material. The major difference between the upwardly mobile and the stable lower-class respondents was that the former were able to avail themselves of a set of symbolic media—mathematics, history, philosophy, science—which allowed them to transform the personal psychic struggle onto a broader level where innovative solutions were possible. This fact suggests some broadening of existing conceptions of the determinants of behavior.

The life theme appears to be a system for coping with the world which is inherited through symbolic interaction. The physiological gestalt which constitutes the physical organism and which underlies our abilities to cope and survive are determined by genetic information. The science of genetics has developed to study its laws. The cultural forms through which adaptation is manifested, however, are mediated symbolically by life themes which are transmitted through human interaction, and the laws of this process are still largely unknown.

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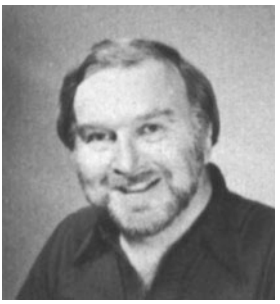

Mihaly Csikszentmihalyi was born in Italy of Hungarian parents. He grew up in Italy working as a travel agent, translator, painter, and journalist. Although active in art and literature (he wrote for Le Monde, published in the New Yorker. The Nation, and translated books from various languages), he was also concerned with understanding human action from a more systematic perspective. Thus, in 1965 he earned a PhD in Human Development at the University of Chicago, and he has been teaching and doing research ever since. Presently, he is Professor on the Committee on Human Development. Department of Behavioral Sciences, at the University of Chicago. Some of his work has appeared in the British Journal of Psychology, the American Anthropologist, the Journal of Personality and Social Psychology, and the Journal of Humanistic Psychology. Two of his recent books are Beyond Boredom and Anxiety (Jossey-Bass, 1975) and The Creative Vision (Wiley, 1976) written with J. W. Getzels.

Olga V. Beattie was raised in America and in Yugoslavia, speaks five languages, and has worked as a newspaper correspondent, translator, movie actress in France, laborer in a student brigade for Yugoslavian highway construction, and teacher. After earning a B.A. in Slavic Languages and Literature from the University of Chicago, she entered the PhD program in Human Development there. Her ongoing research includes attempting to discover thematic aspects in personality across familial generations to see where individual psychological systems and family systems intersect.

Summary

Csikszentmihalyi and Beattie studied the life histories of 30 men to illustrate the concept of "life theme." A life theme is defined as an affective and cognitive representation of existential problems which a person wishes to resolve. It becomes the basis for an individual's fundamental interpretation of reality and way of coping with that reality. They then investigated the dimensions and sources of variations in life themes, and their effects on career choice and social mobility. Their conclusion was that life themes are constructed from symbolic structures transmitted through interactions which mediate cultural adaptation. Thus, they are functionally equivalent to cognitive and physiological structures transmitted through genetic inheritance.

Chapter 4
The Role of Emotions in the Development of Wisdom

Mihaly Csikszentmihalyi and Jeanne Nakamura

It is with a slight sense of embarrassment that we embark on this task of writing about wisdom. Although it is clearly the case that one can be immersed in a subject without claiming kinship with it-an entomologist can write about spiders without having to be one—wisdom has an alluring aura suggesting that those who dare to write about it must be to some extent also wise. We would like to relinquish any claims to that effect, at the outset, and, relieved of the burden of appearing wise, start to analyze this important and interesting phenomenon with the conceptual tools of the social sciences.

In what follows we sometimes will use the same word "wisdom" to refer to two distinct phenomena. The first refers to the *content* of wisdom, or the kind of knowledge or information that a particular culture deems wise at a given time. The second use of the term refers to an individual's *capacity* to think or act wisely. Although we usually distinguish these two usages at least implicitly, for the sake of style and space sometimes we refrain from doing so, confident that the reader will have no trouble discerning the intended meaning.

Research on the relationship between wisdom and emotions usually focuses on patterns of affective regulation that are considered to be "wise"—such as being able to recognize one's own and other people's emotions and being able to restrain oneself from inappropriate emotional responses (Lazarus 1991; Gross 1999). Recently, this perspective has become assimilated into the literature on "emotional intelligence" (Barrett and Salovey 2002). Some of the studies are also concerned with how positive (Frederickson and Joiner 2001) or negative (Parrott 2001) emotions can complement rational decision-making processes, contributing to better outcomes.

This chapter will focus specifically on the relationship between emotions and the development of wisdom. Although, as we shall see, there is an important relationship between the two, the task of presenting the evidence is made difficult

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because the research literature on this point is rather scant. The development of wisdom is usually seen as a dialectic interaction between personal experience and reflection, or between affect and cognition (Berg and Sternberg 1985; Kramer 1990; Labouvie-Vief 1982). In this chapter, instead of assuming that wisdom is exclusively an intrapsychic process, we look at it as the result of an interaction between persons, on the one hand, and knowledge stored in cultural values, behavior patterns, artifacts—or memes—on the other. The question then becomes, what emotional factors are implicated in tile development and transmission of wisdom in this restricted sense? This is the question that the present chapter attempts to answer.

Before considering the connection between emotions and the pursuit of wisdom, we will need to set a broader conceptual stage. In doing so, we may overlap with the content of some of the other chapters in this volume. However, without providing a theoretical context, the significance of emotions for an understanding of the emergence of wisdom would remain unclear.

The broadest theoretical framework is the one provided by evolutionary theory. Thus, in the first section of this chapter, we shall apply an evolutionary perspective to what constitutes wisdom, separating the cognitive aspects from those depending more on emotion, and concluding with the question: *How does practicing wisdom feel*? This leads us to the next section, which examines the phenomenology of wisdom. Two different claims are considered: that wise people cannot be happy because they know too much about human suffering; and the opposite claim, that wisdom confers serenity and happiness. We end this section by concluding that the evidence suggests that the second claim is closer-to the truth, and that in fact *wisdom generates positive emotions that are necessary to continued engagement with tasks requiring wisdom.* The emotion we focus on is the intrinsically rewarding feeling of engagement people experience when involved in the practice of wisdom—a feeling that is often indexed simply as happiness, or positive emotion. In this section, we report material from some case studies of wise individuals describing the emotional commitment to the pursuit of wisdom. Finally, the next two sections expand on *how positive emotions are implicated in the development of wisdom, and how the measurement of positive emotions might be used in doing research on wisdom.*

Wisdom and Knowledge: An Evolutionary Perspective

At a first glance, emotions do not seem *to* have much relevance to wisdom, which is generally considered to be mainly a form of cognitive calculus. But is wisdom really nothing but a form of intelligence, a particular cognitive process that can be understood within the paradigms appropriate to the study of other rational processes? The answer seems to be both yes and no, depending on how narrowly we define rationality itself. In many respects, wisdom is a concept that has been used to define mental activity that is directed by values and emotion. The limitations of

reason have been well understood since ancient times. As any high school debater learns, depending on the premises chosen and what evidence is suppressed or advanced, diametrically opposite conclusions can be reached logically from the same array of facts. The concept of wisdom is usually defined in contrast with overly narrow perspectives on rationality.

Many thinkers have sounded warnings about trusting the intellect too much. In 1580, at the beginning of his *Essays,* Montaigne wrote: "For it is not for knowledge to enlighten a soul that is dark of itself, nor to make a blind man see. Her business is not to find a man's eyes, but to give, govern, and direct them, provided he have sound feet and strong legs to go upon…" (Montaigne 1987 [1580], I, 24). More recently, Albert Einstein expressed the same idea using remarkably similar language: "We must take care not to make intellect our God. It has, of course, powerful muscles, but no personality. It cannot rule, only serve." Even though Montaigne attributes muscles to the soul, and Einstein to the intellect, both writers agree that knowledge or reason are only tools, and they need direction from somewhere else. No one stated the idea more succinctly than Martin Luther when he wrote: "The intellect is the Devil's whore" (quoted in Steigmann-Gall 2003, p. 55). In other words; reason, intelligence, and knowledge can be used for good or for ill, and there is good reason to fear that they will be used unscrupulously, or for ends that one will later regret. An excellent illustration of this quandary is the one provided by the Manhattan Project, where some of the best minds of the last century spent years perfecting the first nuclear device, a process that their leader, Robert Oppenheimer, described in a letter to his wife as the solution to "that sweet problem" (Csikszentmihalyi 1985). It did not take too many more years for physicists to realize that although the problem of building the A-bomb had been intellectually challenging and thus "sweet" to theoreticians, it might not have been entirely wise.

At the same time, wisdom does not refer to thinking that is irrational, or even rational. Rather, it describes a mental process that is best characterized by focusing *on* the most relevant variables, by considering the broadest interests, and by taking long-range effects into consideration (Csikszentmihalyi and Rathunde 1990). Given this holistic, inclusive agenda wisdom cannot proceed with the simple elegance of self-contained symbolic systems such as mathematics, or even that of the sciences. It relies more on global judgments, intuitive leaps, and consideration of values. It is more likely to aim at satisfying than optimizing. But within the domain in which these priorities are in effect, wisdom proceeds by the rules of ordinary logic.

The reason wisdom is nowadays discounted by many people as if it were an archaic remnant of primitive thought is that contrary to more "modem" cognitive domains, it has never developed a *sui generis* symbolic system—such as those developed by logicians, mathematicians, and scientists. This is both its weakness and its strength. The strength lies in two related consequences of it being an unsystematic cognitive process: first, that it is not constrained to operate within an abstract domain isolated from the rest of reality; and second, that it does not have to cater to the self-interests of a cadre of specialists. The weaknesses of wisdom are obvious: Lacking clear rules of procedure it is difficult to separate what is truly

wise from what only appears to be so; its truth may take a long time to be confirmed; there is no cadre of specialists to vouch for its veracity and promote its virtues. Nevertheless, as specialized knowledge becomes more and more molecular while the problems confronting human survival get increasingly global, it would seem that the use of wise deliberation is increasingly essential.

What differentiates a person who impresses others as being "wise" from one who is perceived to be less so? Both the reading of a variety of texts dealing with wisdom, ranging from the Bible to modem philosophers (Csikszentmihalyi and Rathunde 1990), and the investigations of Robert Sternberg and his lab (Sternberg 1990), permit us to identify some specific traits of wise persons that in the public eye distinguish them from people who are intelligent or creative but not necessarily wise. These traits include being able to contextualize information, to understand the limits of what is known, to be aware of ambiguities and moderating conditions, and to get at the deeper meanings beyond superficial appearances (Peterson and Seligman 2004; Sternberg 1990). Or, according to the conclusions of the Berlin Wisdom Project, w*isdom is integrative, holistic, and balanced knowledge oriented toward the common good* (Baltes et al. 2002).

We doubt that the ability to use one's mind in such ways is the result of specific brain structures. It is more likely that wisdom is the result of mental habits formed early in life that result in perceiving problems as embedded in complex matrices, and that include empathy and care for a wide circle of responsibility. Wise individuals pay attention differently than the rest of us, relying more on that "disinterested interest" Jurgen Habermas described (1972). They are objective in their assessment of reality (and thus disinterested), yet at the same time are concerned about each aspect of reality (and thus interested).

More specifically, wisdom always includes an understanding of human nature—a knowledge of its strengths and weaknesses, of its limits and its aspirations. It is for this reason, that one would be reluctant to call "wise" persons who allied themselves with extremist movements such as Nazism or the Russian Soviets—both of which ignored the real needs of human beings for the sake of imaginary ideals—whereas many perfectly rational intellectuals did not hesitate to embrace such movements. In addition, wise persons know their own specific strengths and weaknesses (e.g., Meacham 1983). This element of self-knowledge—enshrined in the words carved at the entrance of the Delphic oracle—is one of the most distinctive attributes of wisdom. Wise persons are not inclined to denial, self-aggrandizement, or wishful thinking. Nor do they feel a sense of unwarranted inferiority.

But where does this ability to think wisely originate? The habits of attention that we tend to characterize as wise—the dispassionate concern for relationships and their consequences—are more likely the result of nurture than of nature. Even more than other cognitive processes, wisdom relies on selecting relevant information from the past and on applying it to present conditions. Wisdom is definitely not "in the head," but in the relationship between an inquiring mind, and the results of the inquiries of bygone minds. Thus a person who has no access to the

wisdom of the past, who is not able to separate what is relevant to the present from what is not, is not likely to be thought wise.

Every culture needs to pass on the hard-earned lessons of the past. Until recently, these were worked into myths, fireside stories, proverbs, songs, and ritual dances. Later, religious systems evolved, shrouding important advice about living in divinely inspired commandments. For most of human history, the lessons were transmitted by the medium of words, and required one-to-one communication (Csikszentmihalyi 2000). With the advent of writing a few thousand years ago, the storage and diffusion of information became much easier and more reliable. Thus, historical writing, literature, and quite recently the human sciences began the task of sorting out and preserving thoughts deemed important for the future.

Of course, if we think of wisdom as the transmission of past experience, the question immediately arises: Who decides what is important, useful, worth remembering—that is, wise? Clearly not all individuals contribute equally to these decisions. In simple hunting-gathering societies it is likely that the myths and proverbs that survived were the ones that a majority believed and endorsed. But as hierarchical societies emerged roughly 10,000 years ago, the selection, coding, and transmission of information became increasingly centralized and controlled by the military, religious, and economic elites (Csikszentmihalyi 1990b). Thus, it became increasingly necessary to be careful in simply endorsing traditional wisdom, for it might represent the interests of particular groups rather than the common good.

This is, of course, a problem not limited to wisdom, but to the transmission of *all* cultural material: Whether it pertains to religion or to science, to the laws or to artistic taste, all messages are to a certain extent tainted by special interests. It is for this reason that wisdom begins with the sifting of past wisdom, continues with prioritizing the messages that pass muster, and then seeks the application of past lessons to present conditions. It is in this respect that wisdom has an advantage over other forms of knowledge. When religion and science become institutionalized, they develop a strong interest in keeping control of the accumulated knowledge for their own benefit The Catholic church claimed privileged access to the will of God, and built lavish monasteries and cathedrals with the sweat of peasants, since nothing less would be fitting to house the servants of the Lord, The scientific institutes of our days construct huge labs that once built must be staffed and maintained, whether the knowledge they produce is useful or not. Because wisdom is less dependent on organized interest groups such as churches or scientific domains (although it can be exploited by both), it is less likely to be contaminated with specious pleading.

Thus, wisdom is best understood as part of the process of cultural evolution. Like biological evolution, the cultural form is a process by which previous information is reproduced, new "mutations" are introduced by chance or by design, then the most promising mutations are selected out from the less promising ones, and finally the selected novelties as well as the surviving old matrix are transmitted to a new generation (Campbell 1976). Unlike biological evolution, where the information is chemically coded in genes, in cultural evolution the

information is coded in *memes* that must be passed on through learning (Csikszentmihalyi 1993; Dawkins 1976; Inghilleri 1999). Although other cognitive processes such as scientific thinking privilege the production of new memes rather than the selection and transmission of knowledge, wisdom is primarily concerned with selecting worthwhile manes and then transmitting the selected ones to new generations.

Given this perspective, we may define the content of wisdom as information relevant to important life choices, which one is prone to pay attention to, remember, and want to transmit to others—regardless of momentary interests or specialized knowledge. Although cumbersome, this definition captures the salient aspects of what makes information wise: It is a meme believed to be useful, hence worth remembering; something that does not depend on particular conditions or special training; that is believed to help make life decisions, and is thus selected spontaneously by those who are privy to it. It follows that a wise person is someone who can provide such content.

From an evolutionary perspective, the fact that some individuals are willing to invest psychic energy in this process may seem absurd. Why spend effort acquiring disinterested knowledge that may or may not benefit the self? A person who takes the long view, who is primarily concerned with the common good, is to that extent less able to pursue his or her own interests. Thus, the logic of selection should eliminate wisdom from the repertory of human responses. But recent evolutionary thinking has been correcting the excessively individualistic interpretations of Darwinian theory. It is now becoming clearer that selfless individuals, who are taken advantage of in a competitive society, prosper in a social milieu that is less selfishly competitive. And less selfish societies—other things being equal—have an advantage over more selfish ones (e.g., Wilson 2002). Applying this insight to wisdom we may conclude that the reason wisdom has yet to be eliminated from our conceptual repertory is that communities in which it is encouraged have some advantage over those that do not see any point in it; and in such communities wise persons may prosper despite their relative lack of selfish interests. A more proximal explanation as to why people will practice wisdom has to do with its phenomenology—with the emotions a person feels when attending to memes that contain wisdom.

The Phenomenology of Wisdom

Thus, although essentially a cognitive process, cognition is not the only aspect of wisdom that should interest psychologists. A neglected dimension of wisdom is its lived quality—the emotional experience that accompanies it. One widely held assumption is that wise individuals must pay a high price for their understanding—after all, their insights into the nature of reality must inevitably reveal the tragic elements of life. Concern for the well-being of others must exact a heavy toll when the wise contemplate the sufferings of humankind. Less wise individuals, either

because they are taken in by superficial appearances, or because they ignore the suffering of others, can be happy; but that feeling must be inaccessible to the wise. This widespread sentiment was well illustrated by the answer Charles De Gaulle gave to a journalist who had asked him during an interview: "Monsieur *le President,* are you a happy man?" De Gaulle stretched his frame to its fullest height, and looking down the bridge of his formidable nose on the quivering reporter answered with another question: ''What kind of a fool do you take me for?" Only fools, apparently, can afford to be happy.

Yet there is another, contrary set of beliefs that links wisdom with happiness. In an earlier paper, it was claimed—mainly on the basis of traditional accounts—that psychologists have largely ignored the claim that wise people enjoy life, both moment-by-moment, and in its entirety (Csikszentmihalyi and Rathunde 1990). For example, Plato made the point that to get any of the rewards of life-pleasure from good health, satisfaction from fame, good use from wealth—one needs wisdom *(Meno,* 87; *Euthydemus,* 278). Similar conclusions were reached by most classical and Christian philosophers: by Aristotle in the *Nichomachean Ethics*, by St. Augustine in *De Trinitate,* and by Thomas Aquinas in the *Summa Theologica* (e.g., 1, 5; 1, 64). Montaigne asserted that "the most manifest sign of wisdom is continual cheerfulness" (*Essays*, 1, 25). Or, as the final chorus chants in Sophocles' *Antigone*: "Wisdom is the supreme part of happiness."

At this point, there is only scant empirical evidence on which to decide which of these opposing claims is closer to being true. Of the few studies, most seem to support the second conclusion, namely that wisdom induces positive emotions. For instance, Peterson and Seligman (2004) cite several studies showing a positive relationship between wisdom and psychological well-being. In Lyster's (1996) study, those with higher wisdom scores expressed less dissatisfaction with their lives than those with lower wisdom scores, which she viewed as indicating freedom from despair. More positively, in the same study, serenity—an accepting stance toward both positive and negative feelings—was the emotion conveyed by the largest percentage (52 %) of those nominated as wise. Barrett and Salovey (2002) have suggested that knowing how to read, use, and manage emotions—aspects of emotional intelligence—constitutes a kind of "wisdom in feeling"; we would expect this to be associated with subjective well-being. Finally, using data from, the longitudinal Berkeley Guidance Study, Ardelt (1997) concluded that the strongest predictor of life satisfaction in old age is wisdom. Still, one needs triangulation with more ecologically valid data before this important issue can be considered settled.

While waiting for further evidence, we might formulate the question on theoretical grounds: How *could* wise persons be cheerful and happy when their holistic understanding inevitably must highlight the tragic elements of life? On the face of it, such a thing should not be possible. As usual when anomalies such as these arise, their presence suggests some interesting and possibly important breakthrough in understanding. In this case, there are both ancient and contemporary clues as to how it is possible to be wise and happy at the same time. In the writing of Christian philosophers, for instance, the argument is made that all of creation is

God's work and hence good. Evil and suffering only come about when the will of God is purposefully thwarted. From this perspective the wise person, although regretting the presence of evil introduced by sinful individuals, rejoices in identifying with God's creative vision, confident that eventually a blessed harmony is bound to prevail. An identification with the universe as a whole, an acceptance of the mysterious presence of evil as a minor theme in the scheme of things, and hope in a better future tend to be ways in which wisdom has been linked to happiness East and West through the centuries.

For example, Viktor Frankl, the Austrian psychiatrist who described his confinement in the Nazi extermination camps, writes: "The prisoner who had lost faith in the future—his future—was doomed. With his loss of belief in the future, he also lost his spiritual hold; he let himself decline and became subject to mental and physical decay" (Frankl 1985, p. 95). But how were prisoners to believe in their personal future when comrades were dying left and right each day because of the dehumanizing, hopelessly brutal conditions of the camps? Frankl suggests that despite the painful reality, some individuals were able to keep hope and dignity to the end, because "they were able to retreat from their terrible surroundings to a life of inner riches and spiritual freedom'' (Frankl 1985, p. 55). The "inner riches" Frankl refers to are not something encoded in the genes, or acquired by chance. They are the result of the cultivation of past wisdom. Only those individuals who become carriers of the evolving culture—those who recognize and select the best memes of the past, who remember them and transmit them to others—only those persons can feel that they have a role in preserving a livable world.

In other words, past memes that are wise serve as bridges to the future. Christian theologians as well as Jewish psychiatrists know that the worst sting of suffering can be eased by the knowledge that one is responsible for preserving what is best about humankind. Thus, it is possible to be hopeful, and perhaps joyful, even under the worst adversity.

These considerations also explain why a person would spend energy in being wise (i.e., in attending to, selecting, improving on, and transmitting memes that are unlikely to result in any practical personal advantage). If it is true that acting as an agent of cultural evolution provides a positive experience in the moment, the nagging question: Why be wise? would be answered. In other words, wisdom is one of the activities that we do because they are intrinsically rewarding.

Most things we do need to be motivated by the expectation of *extrinsic* rewards, because there are no other reasons for doing them. We study, work, commute, groom, eat, and sleep because we have to. We need external rewards or threats to keep investing scarce psychic energy in them. And then there are activities like singing or dancing, playing or exploring, that are so rewarding in and of themselves that we do them even without any stick or carrot to motivate us. These are activities that provide *intrinsic* rewards (Csikszentmihalyi 1975, 1990a; Nakamura and Csikszentmihalyi 2002).

But whether one feels rewarded intrinsically does not depend only on the nature of the activity. Enjoyment is both a *state* (that is, it depends on parameters of the activity or the environment), and a *trait* (it depends also on the habits and attitudes

of the person). Some people seem to be able to transform almost everything they do into an enjoyable activity. For such "autotelic" individuals even study, work, and the routines of everyday life can be rewarding intrinsically. So we suggest that the possession of wisdom is rewarding in itself, and that wise persons find joy and serenity in pursuing wisdom.

The Development of Wisdom

How do emotions affect the development of wisdom? This question would not be important if all it took to be wise was to accumulate enough varied experiences as one aged. Although popular opinion generally attributes wisdom to older individuals, assuming that we grow wiser with time, the empirical evidence is inconclusive. Cross-sectional studies generally find no correlation between wisdom and age. After reviewing the latter literature on the subject, Staudinger (1999) concluded: "Between 20 and 75 years, age has been demonstrated to show a zero relation with wisdom-related knowledge and judgment" (p. 641). After age 75, wisdom suffers from the same decrement as other cognitive functions, but perhaps somewhat less than, for instance, memory does (Baltes and Staudinger 2000).

A different perspective on wisdom and development is the one proposed by Meacham (1990). Here wisdom is seen not as the possession of cognitive skills or knowledge *per se* but as a particular attitude toward knowledge: a critical balance between knowing and doubting. The assumption is that "all people are wise to begin with, as children," and tend to lose their critical attitude as they age (Meacham 1990, p. 198).

Whether one conceives of wisdom as the acquisition of certain kinds of information, or as a specific way of processing information, leads to different developmental predictions, and to different approaches to intervention. If wisdom relies mainly on content, it would make sense to expect that it will increase with age; if it involves cognitive strategies that may be adversely affected by too much information, as Meacham suggests, then one might expect a decline with time.

It bears noting that recent longitudinal studies provide some evidence in support of the popular belief that wisdom increases with age (Hartman 2000; Wink and Helson 1997). The jury, thus, is still out. Because age in any case is what developmental psychologists have sometimes called an "empty" variable, a marker of age-associated processes that remain to be understood, we turn now to thoughts about the underlying developmental processes. As we have stated earlier, in our opinion the essence of wisdom consists in acting as a bridge between valuable past experience and its future reproduction. This involves the relatively rare inclination and ability to manage a dialectic the willingness to turn to cultural tradition for answers, and simultaneously the willingness to question traditional answers in light of personal experience—and to enjoy doing both.

Which pole of this dialectic is privileged may vary in different cultures at different times. Acquiring wisdom in a traditional culture may involve substantially different processes than it does in contemporary society. The more slowly a

society changes, the more readily succeeding generations might perceive traditional wisdom as being relevant to experience. In collectivist cultures, or in current fundamentalist religious subcultures, the emphasis is on the replication of past memes, and questioning their wisdom with reference to personal experience is frowned on or actually punished. In individualistic cultures and subcultures, such as the academic enclaves of postmodernism, traditional wisdom is suspect, whereas personal experience and current perspectives are privileged. Perhaps reflecting this, Western psychological theories of wisdom may preserve the dialectic but cast it in exclusively individualist terms, portraying it as the personal growth that occurs through the interplay between the lessons of the *personal* past and the individual's current experience. The subculture of science also tends to discount the past in favor of the present and the future: On the door of many undergraduate physics or chemistry departments one could read slogans such as: "The knowledge of the past generation is no longer true."

When the dialectic tilts too far in one or the other direction, the result can hardly be called "wisdom" any longer. There can be legitimate variation in emphasis between past and present and still remain within the bounds of what might be allowed as wisdom. Our perspective suggests, however, that any developmental model, or any educational intervention, must take into account both aspects of the dialectic: the concern for sifting among the memes of the past, and the concern for transmitting the best to the future. Any human group that forgot the record of past life choices and their consequences would have to rediscover the most elementary rules for how to live, and painfully recapitulate literally tens of thousands of years of cultural evolution.

In the lay view, wisdom develops as a result of experience—Surely this is not the complete story, however. One certainty is that it is possible to grow old without growing wise. Nor is an eventful life a guarantee of wisdom, any more than having led a quiet life precludes the growth of perspective—one thinks of the life of Emily Dickinson. Empirical research is beginning to suggest a picture that recognizes the importance of a person's attitude toward, and response to, his or her life experiences. If it is not enough to have long or extensive experience, how does wisdom develop? Two key and dynamically interrelated factors appear to be openness to experience and a capacity to reflect on experience to make sense of it.

Kramer (2000) reviewed the empirical research and concluded that openness to experience is the most common personality predictor of wisdom. It encompasses both psychological-mindedness, or openness to one's *inner life;* and curiosity about the *outer world,* including openness to other perspectives—not the least of which, we suggest, are "culture carriers" such as wise people, books, the arts, and traditional belief systems.

Openness is paired with a reflective stance about experience. Lyster (1996), for example, examined a host of factors and concluded that wisdom develops in midlife "through the dynamic interplay between openness and critical reflection" (p. iv). An individual makes sense of experience through life review, the process of coming to terms with past choices; reflecting on rather than avoiding past life experiences; and critically evaluating lessons drawn from the past, both individual and collective.

Despite promising recent research, a number of questions about the ontogeny of wisdom continue to remain virtually untouched. First and most fundamentally, in the absence of the kind of interventions currently being explored by Sternberg (2002), *why* does a person develop wisdom—what sets a person on this path and what subsequently keeps him or her on it? In our terms, how does a person form the habit of attending to the domain of life choices? One possible answer is that a person's life experience—for example, some tragedy or stress—demands this focus of attention. The idea has the ring of truth, and researchers have examined negative life events, and stressful life events, as possible antecedents of wisdom. The findings have been mixed. Lyster (1996), for example, interviewed individuals nominated as wise and found that contrary to her expectations, wisdom was associated with identifying *positive* life events as the turning points in personal development.

A second possibility, equally plausible from an evolutionary perspective, is that people might be drawn (rather than driven) to invest their psychic energy in thinking about life matters because of the positive emotions that accompany the process. We have suggested that possessing wisdom may bring with it happiness rather than despair. It may seem still more dubious that the *pursuit* of wisdom would be intrinsically rewarding, enjoyable, or undertaken for its own sake. After all, several models of development reviewed by Kramer (2000) characterize the process as "long and arduous," "often painstaking," and dependent upon the "active exertion of will." But our interviews with leaders in a variety of fields, many of whom qualify as "wise" in their own domain of achievement and also more broadly, lead us to wonder. The futurist and economist Hazel Henderson provides an example of someone who recalls sheer delight at reflecting on the domain of life, from early childhood on. She explained:

> [People] should really enjoy contemplating themselves, and figure out, you know, "What am I doing here on this planet?" Enjoy the wonder of that question. Which I know I had when I was *five*… where you just open your eyes and you look around and say, *"Wow, what an incredible trip this is! What the hell is going on? What am I supposed to be doing here?"* You know. And I've had that question in me all my life. And, I love it! Because it makes every day very fresh…. [I]f you can keep that question fresh and remember what that was like when you were a child and you looked around and you looked at, say, trees, and you forgot that you knew the word "tree,"… when you wake up, it's like the dawn of creation. (Unpublished interview, Creativity in Later Life Study)

People who become wise may thus resemble individuals animated by an intense interest in domains of other kinds, such as the naturalist fascinated by flora and fauna so vividly described by E. O. Wilson in his autobiography (Wilson 1994).

A child's family and community may meet and satisfy this joyful curiosity, or perhaps extinguish it, for instance, by socializing the child into a religious or other tradition that provides ready-made, authoritative answers to life's questions. In contrast, Henderson's parents catalyzed a lifelong search, modeling a path of openness and critical scrutiny carved out between the unquestioning acceptance of traditional wisdom on the one side, and the unquestioning rejection of traditional wisdom, on the other. If most people tilt toward the guidance of either personal

experience or else toward tradition as they acquire wisdom, Henderson illustrates the former process:

> I think that one of the advantages I had as a child was that my parents were strict atheists. And so I didn't have any religious code stamped on me. And so… what I would later describe as the spiritual inquiry was quite urgent. I would come home from school when I was 5 years old, you know—I remember vividly—or six, and say to my mother, "Well, we learned all about the little Lord Jesus today." And she'd say, "What rubbish!"… *"Wow,* what am I supposed to do with *that?*"… it both makes you very open, and you don't reject anything, but you also—everything is subject. And you allow yourself to perceive an awful lot and you don't reject anything automatically, but neither do you accept anything automatically. So you're constantly in a very active mode of evaluation and critical reasoning. (Unpublished interview, Creativity in Later Life Study)

We have suggested that the acquisition of wisdom entails turning to memes embedded in culture carriers—books, people, art, and so on—in a quest to make sense of the problems of life. The importance of books or other sources of the culture's accumulated wisdom might be revealed through chance events, as exemplified by Malcolm X's discovery of books while in prison; or through normative experiences, for example, years of socialization within the family of origin. Another participant in the Creativity in Later Life Study, the writer Madeleine L'Engle, illustrates how the early family environment may model and encourage the valuing of culture as a legitimate source of insight:

> I lived in a house full of books. A story was not an unusual thing in my household as it is in some households. My parents read aloud to each other, every night of their lives, a story. So I lived in an atmosphere where story was honored, not considered suspect…. I understood [as a child] that when you want to find out what life is about, you turn to story, not encyclopedias. Those are for facts. Facts are thin… they don't carry you very far. (Unpublished interview. Creativity in Later Life Study)

It may make sense to understand the turn toward culture, like the immersion in exploration of life matters, as intrinsically rewarding or enjoyable for at least some people "at risk" for wisdom. L'Engle's enduring respect for story (versus mere "facts") extended to culture carriers more generally. She explicitly recognized the role of the wise individuals in her own life, as well as the role of story, as bridges between past and future:

> story is not "looking behind." It's the rock which gives us the impetus to spring forward into the future. And we need wise old women; we need wise old men; we need wise older people. I've been very lucky in my life. This is really the first time in my life where I'm not young enough to have wise older friends. They've been very important to me… people who had lived a lot longer and knew a lot more and had accumulated a lot of wisdom and humility. (Unpublished interview, Creativity in Later Life Study)

Finally, we have argued that developing wisdom depends on a dynamic interplay between openness and reflection, and on a turn toward carriers of culture that enables the individual to draw on the wisdom of the past to solve problems in the present. The development of wisdom, and the desire to transmit the yield of the cultural and personal past to future generations, would seem to depend additionally

on a concern for others beyond oneself. At this stage in our understanding of the ontogeny of wisdom, we can only speculate about possible sources.

One possibility is that a concern for others is a positive impetus beginning early in life, much like the lifelong curiosity about the world that Hazel Henderson professed. A related possibility is that a sense of care transcending the boundaries of the self may arise if a person is led to universalize some dilemma he or she has personally encountered. The notion of a *discovered life theme* describes a person's formulation of an experienced dilemma in universal terms, thereby permitting it to be addressed through a culturally provided solution (Csikszentmihalyi and Beattie 1979). Finally, consistent with the notion of developmental tasks that succeed one another over the life course, the generativity concerns normatively associated with the middle years might explain the hypothesized growth of wisdom in the second half of life (Hartman 2000). In all these cases, investment of psychic energy in goals that transcend the individual self, or generativity, may be intrinsically enjoyable. That is, like the devotion of psychic energy to life matters, and like the turn to culture, caring for future generations is sometimes motivated by the experiential rewards that it provides (e.g., Colby and Damon 1992). In a rare study of wisdom that addressed this question, several participants reported that "generative interactions were experienced as fulfilling, satisfying, or enriching suggesting that the interactions were intrinsically motivating" (Lyster 1996, p. 129).

In the cases of both Hazel Henderson and Madeleine L'Engle, this expansion of the boundaries of the self was evident in maturity, at the time of their participation in the Creativity in Later Life Study. For example, L'Engle explained:

> First comes the enjoyment of the activity—but I am responsible for what I write. I know that I influence a lot of people. And therefore, I have to have a certain concern that what I write is not destructive…. I don't like hopeless books,… I don't think I could write hopeless books. I think I would just not do it Books that make you think, "life's not worth living." I want to finish a book thinking, "Yeah, this endeavor is difficult but it is worth it, and it is ultimately joyful." (Unpublished interview, Creativity in Later Life Study)

Henderson reached backward, explicitly recalling a strong early identification with humanity and the natural world:

> … one of my resolutions was my connection with the biosphere and nature. And the order that I've always felt in nature, and the beauty of nature, and the fact that everything in nature is so perfect…. So ecological theory has always been a very important way of understanding these contexts, and that… the human race is a family, wherever you find people there's much more the same about them than there is different about them. (Unpublished interview, Creativity in Later Life Study)

Whereas Henderson and L'Engle represent individuals whose wisdom, although solidly grounded in tradition, tilts toward the critical evaluation of the past based on personal experience, other persons who also can be called wise are more deeply immersed in the past and take traditional cultural memes—religious or otherwise—more for granted. In a recent study of responsible and socially conscious business leaders, for instance, it was quite surprising to find how deeply influenced by early religious training such, individuals were (Csikszentmihalyi

2003). For example, the founder of one of the largest advertising companies specializing in ethnic markets said:

> Black culture is founded on the belief—a religious foundation—that good things will come. In my generation, they have. I mean, I admire my forefathers because they persevered when there didn't seem to be much opportunity….But we have an obligation to work hard… I think religion is a very strong element in going forward. (Csikszentmihalyi 2003, p. 157)

In this case the memes for perseverance in the face of difficulty, and for the necessity of working hard, were carried in the "cultural phenotype" of a religious context. The CEO of a large real-estate investment group described his personal philosophy as follows:

> It's a faith that there is some overall purpose or plan to life, and that you and I occupy some place in that plan. My faith gives me that context so everything I see, I see in that context… and I feel like I'm on the Lord's errand, and he has an interest in what I'm doing, (p. 159)

Although each business leader claimed to have evaluated his or her early beliefs and accepted them in adulthood because they jibed with lived experience, at present it is impossible to know how much critical evaluation is needed before the acceptance of past memes can be considered wise.

For example, in the documentary *Bowling for Columbine*, Charlton Heston, a spokesman for the National Rifle Association, defended the Second Amendment—"the right to bear arms"—on the grounds that if it was good for the wise ancestors who had founded this country, it was good enough for him. Here the meme of the right to bear arms was accepted by Heston without questioning whether "arms" at the time of muzzle-loading muskets, and the automatic machine guns now available to teenagers, are actually the same things. Regardless of what one might feel about this issue, the ahistorical, decontextualized acceptance of traditional memes cannot be called wise.

Although case studies can be very illuminating, systematic research on this topic requires more easily quantifiable measures. Yet, the ability to recognize worthwhile options for the investment of psychic resources—or wisdom—is arguably the most difficult personal trait to measure. In terms of the conceptual model developed here, wisdom consists in finding out which goals are worth investing psychic energy in, and then actually doing so. This process should result in the best possible outcomes for both the individual and for the environment in which he or she lives. In other words, being wise should be enjoyable for the wise person and helpful to society.

The Measurement of Wisdom

Even though most theories of wisdom attribute a great deal of importance to life experiences, up to now researchers have endeavored to measure wisdom mainly by means of vignettes that require the person to solve a dilemma bearing on some

crucial life decision. For instance, the laboratory of Paul Baltes at the Max Planck Institute for Human Development in Berlin adopted five criteria to assess "wisdom-related performance." These are (a) factual and (b) procedural knowledge; (c) understanding of the basic contexts of life and their interrelations; (d) acknowledgment and tolerance for a diversity of values; and (e) recognition and management of uncertainty. These five criteria are assessed by responses to fictional life problems presented in the context of an interview. Transcripts of the tape-recorded protocols are then coded by trained judges (Baltes and Staudinger 2000). Sternberg (2002) uses similar dilemmas including conflict resolution problems, moral judgment problems, and personal dilemma problems to assess wisdom-related thought processes of students.

In line with our preference for measuring experience and behavior in ecologically valid real-life settings, we suggest that the following approaches based on assessing more emotionally based dimensions may complement previous approaches:

Assessing attention and commitment to the past. We have argued that a wise person is like a link, joining the achievements of the past with those of the future—an agent of cultural evolution. Thus, perhaps the most important thing to find out about a person is not whether he or she can reason wisely, but whether the person is interested in acquiring valuable information from the past to resolve fundamental questions about human life. Is the person interested in what the cultural tradition has to say about differentiating true from false, good from bad, the beautiful from the ugly?

Assessing belief in and commitment to the future. Wise people are characterized by hope for the future, and commitment to it. They aspire to transmit their accumulated wisdom to others and to put it in the service of a future that is larger than their own. Is that interest discernible in plans to invest their energies in goals that include a wide circle of responsibility, rather than in goals that are more self-serving (Schmuck and Sheldon 2001)?

Assessing how people use their time and the habits they form. However, it is not enough to know what attitudes toward the past are held by a person—nor what goals the person embraces. Equally important, if not more, is what people actually do. Is a concern for life matters discernible in the way time is spent? Is interest in lessons of the past reflected in actual investment of psychic energy in thinking, talking, and reading about what others have thought or written about the good life? Is avowed commitment to the future manifested in devotion of psychic energy to the pursuit of self-transcendent goals, whether mentoring, grandparenting, environmental conservation, civic life, or something else?

For instance, a record of actual time use can be obtained with the Experience Sampling Method (ESM) or diary method (e.g., Csikszentmihalyi and Schneider 2000). This would begin to indicate whether a person invests his or her time in these ways, or in others—for example, passive leisure (e.g., television viewing) or contentious interpersonal interactions. This method also may reveal to what extent the person is developing habits of action and attention that may lead to life-choices consistent with wisdom. Habits, as the early psychologists recognized, are among the most distinctive and powerful determinants of the quality of life. So, for

instance, when Vaillant (2002, p. 208) reports in the follow-up to the Harvard Study of Aging that whereas 64 % of men who drank little and smoked little were free of physical disabilities between 75 and 80 years of age, but only 24 % of those who drank little but smoked heavily were hale and hearty at that age, it is not too difficult to conclude that starting to smoke early is not a wise life choice.

Assessing the quality of subjective experience. Most important, the ESM could be used to provide a measure of the person's quality of experience in the context of everyday life. Thus, it would be possible to see whether the patterns identified earlier are associated with active enjoyment when thinking about, talking about, and taking action in the domain of life choices. In addition, it would be possible to measure that capacity to regulate both inner life and interpersonal experience that is widely attributed to wise persons. Finally, it would be possible to explore whether these patterns are associated with overall serenity or other forms of positive affect—whether the habitual pursuit of wisdom brings enduring happiness.

Conclusions

In this chapter we have argued that the *content* of wisdom is best defined as those memes—or units of information learned from the culture—that are perceived as being most helpful in making choices leading to a happy, or at least to a satisfied life. The *trait* of wisdom therefore refers to the ability to search for and recognize such memes, to evaluate their applicability to current conditions, to implement them in one's life, and then to transmit the information to future generations.

The proximal reason wisdom exists, we have argued, is that its pursuit and possession are intrinsically rewarding. The joy of discovering a valid truth provides some of the most memorable moments in life, and dedication to wisdom leads to a serene existence that few other achievements can match. Of course, not all persons are equally equipped to pursue wisdom. Whether because of genetic differences or early experiences, some individuals appear to mistrust or be disinterested in traditional wisdom. Others are too ready to accept memes from the past without distinguishing the ones that are still valid from those that are not.

These considerations suggest that wisdom can be learned. The prerequisites for it—such as openness to experience, exposure to past wisdom, and the ability to evaluate tradition critically—are to some extent teachable. How to do this well is one of the priorities for our time.

Like other valued human attributes—such as beauty, virtue, or creativity—wisdom is time- and space-specific. Polynesian obesity is not considered particularly beautiful these days, nor Spartan virtue very desirable. Much of what our ancestors rightly thought was wise can no longer pass muster. The worldview of Confucius fragmented into fortune cookies has little chance to enhance our life choices. Nevertheless, at any given time some memes strike enough people as valid distillations of experience to merit the label "wise," and no culture can exist

for long without the belief that it can distinguish what is wise from what is foolish. Even though it may not affect the majority's behavior, the belief in wisdom is by itself sustaining. For this reason if for nothing else, facilitating the growth of wisdom and the capacity for cultivating it remain priorities even in our age of increasing specialization.

In this endeavor it is essential to remember that the pursuit of wisdom, and its deployment, thrive on joy. The best recipe for the spread of wisdom is the encouragement of curiosity, respect for the best accomplishments of the past, coupled with a burning desire for improving on them; and all of this within a conception of self that extends to other people, the planet, and beyond. When these elements are in place, a joyful immersion in the complexity of life is likely to ensue—an openness to experience, a willingness to delve deep into issues of concern to self and others. If such an attitude develops far enough then understanding life becomes increasingly rewarding in itself. The person will be seen as wise, and his or her actions also will be considered wise.

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Chapter 5
Reflections and Reviews

The Costs and Benefits of Consuming

Mihaly Csikszentmihalyi

Consuming is defined as behavior whereby entropy is increased in exchange for existential or experiential rewards. Existential rewards are well known—for example, the satisfaction of Maslowian needs. But experiential rewards are perhaps just as important: these refer to the temporary improvement in positive mood people experience when they are acting in goal-directed, purposeful ways. Consuming is one way for obtaining such experiences. It is suggested that in order to evaluate the Impact of consuming It is necessary to measure the entropy costs of the behavior balanced against the psychic benefits it provides.

Almost half a century ago, the social philosopher Hannah Arendt warned that advances in technology and the increase in free time were providing humankind with the opportunity to consume the whole world. "That … consumption is no longer restricted to the necessities but, on the contrary, mainly concentrates on the superfluities of life … harbors the grave danger that eventually no object of the world will be safe from consumption and annihilation through consumption" (Arendt 1958). At the time these lines may have sounded like hyperbole. But recent calculations suggest that if the rest of the world's population was to develop a lifestyle approaching that of the United States or of Western Europe, at least two additional planets such as ours would have to be harnessed to provide the required

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energy and materials. Humans now consume 40 % of all the net photosynthesized biomass produced on the planet, with the developed countries consuming at rates that are often tenfold those of countries with less developed economies (Henderson 1999). Since at this time we have no access to two spare planets to exploit, we should look more closely at what leads us to consume, in order to better understand what motivates this behavior. It is no exaggeration to say that the future of the world may depend on it.

There are many ways to define "consuming," depending on what aspect of the phenomenon one wishes to highlight. In the present case, I wish to bring attention to the most inclusive context in which consuming could be viewed: that of the physical consequences of the process in terms of energy exchange. From this point of view, a definition might run as follows: *Consuming consists of energy expended to improve the quality of life by means of increasing entropy.* In other words, consuming entails an exchange of psychic energy (usually in its symbolic form, i.e., money) for objects or services that satisfy some human need. These objects are relatively high in potential energy to begin with, but through the process of consuming they are broken down into useless things with low potential energy.

This definition seems paradoxical in that entropy—or the decay of ordered systems and objects to more random states with less potential energy—is a natural process for which no energy input is usually needed. The Second Law of Thermodynamics specifies that with time entropy must increase in all closed systems. So why are we willing to pay for something that would happen anyway? Why do we go to great lengths hastening the onset of disorder in the universe? The answer is, of course, that we expect to benefit in certain ways from increasing entropy.

For example, the steer that produced the rare steak one buys at the supermarket took a great deal of effort and energy to raise, feed, butcher, and transport. It contains a relatively high number of calories, proteins, and other substances that can be transformed into work. Because of this, it has a certain value. After the steak is consumed, however, its materials are broken down into waste with low potential energy and no value.

But as the food is transformed into waste, energy is liberated and transferred to the consumer. So the process of eating is not wasteful because the energy that went into the production of the steak goes to increase the diner's energy (however, one might point out that compared to eating other foods, eating steaks is relatively more wasteful). By contrast, most consumption provides little or no return of this kind to the consumer. Let us imagine, for instance, a father who feels the need to demonstrate his love for his small son by buying an expensive electric car for his birthday. Building the car took some raw materials manufacturing effort, a great deal of marketing, salesmanship, and transportation costs. The price tag took a not indifferent bite out of the father's pocketbook. For a few hours the boy plays with the car, and father and son have some mildly pleasant time out of it. But soon the novelty wears off. The car does not run well on the carpet or the sidewalk, so the boy takes it out more and more rarely, Now it sits in the basement, a useless hulk slowly turning to rust, taking up space. Is the result of such consumer behavior a net increase in entropy or not?

Of course if one took into account the entire cycle of production and consumption we might see a different picture. Production entails a negentropic activity—one that takes raw materials and turns them into useful goods. Yet production also creates disorder in the planetary system: agrobusiness leaves dangerous chemical residues and washes away fertile topsoil; manufacture creates pollutants and exhausts limited natural resources. So to calculate the net effect of consumption one first needs to add up the positive outcomes: the increase in order due to productive processes, and the improvement in the quality of life. Then one should subtract from this the negative outcomes: the entropy caused by the processes of production, and the entropy caused by using up the goods produced. If the result is negative, it means that consumption is accelerating the rate of decay; if positive, it suggests that it helps the evolution of order in the universe. In the present essay, I am going to focus only on one term of this equation: how does consumption improve the quality of life?

How Consumer Behavior Meets Existential Needs

Because consumer behavior is largely driven by the desire to satisfy needs that have been programmed in our minds either by the genes we inherit or the memes[1] we learn from the culture in which we live, it is useful to start the analysis with a consideration of human needs. Of the many taxonomics developed by psychologists, the one by Abraham Maslow (1968, 1971) is one of the most succinct, and one that is familiar to students of consumer behavior (Kilbourne 1987). The model involves only five factors or levels, and it is reasonably comprehensive. We might, therefore, use it to help with a preliminary classification of what motivates consumer behavior.

The "Lower" Needs: Survival and Safety

According to Maslow's theory, the most basic needs that motivate a person are physiological survival needs: to eat, drink, have sex, breathe, sleep, be warm, and eliminate. When these needs are not met. the person will turn all of his or her psychic energy to the task of satisfying them. But as soon as these needs are met, a "higher" set of needs will usually attract a person's attention. A great deal of consumer behavior is directed to satisfy survival needs: food, clothing, and shelter being paramount. However, as we shall see later, rarely does a product or service

[1] A "meme" is a concept introduced by the British biologist Richard Dawkins (1976) to refer to programmed behavioral units that are learned, rather than inherited genetically. It derives from the Greek word for imitation, mimesis. Several writers have found the concept useful for describing the production, selection, and transmission of cultural information (e.g., Blackmore 1999; Csikszentmihalyi 1993: Wright 2000).

satisfy only basic needs; it is more usual for a whole range of lower and higher needs to be involved in every consumer exchange.

Next on Maslow's hierarchy are safety needs: to live in a stable, predictable environment and to be free of anxiety. Many consumer decisions are prompted by safety needs, from buying a house in a "good" neighborhood to buying a handgun or antidepressant drugs. Other exchanges, including paying to get an advanced academic degree, or investing in retirement annuities, are also prompted at least in part by the desire to achieve security.

Love and Belonging

Midpoint in Maslow's scheme, the need for love and belonging is rooted in our fear of isolation and loneliness. Social animals like humans are genetically programmed to seek out the company of other members of the species. When alone (and especially when no pressing task demands attention), the quality of experience for most people declines; depression and bad mood take over (Csikszentmihalyi 1991). In addition to this generic need for human company, human beings have also evolved a more specific desire to be close and to share the experiences of one or a few other persons, usually of the opposite sex. Thus, a need for affection, to love and be loved, is also fundamental to human motivation.

The implications of this set of needs for consumer behavior are many and diverse. For example, bars, restaurants, sport arenas, museums, and concert halls provide opportunities to mix with others, to see and be seen. The entire entertainment industry is predicated on experiencing good times vicariously in the company of virtual fellow revelers. The psychic energy of consumers is targeted with ads that show masses of young people partying on beaches or in bars. If you buy this product, the subtext says, you will not have to be alone ever again.

The need to belong is also served by conformity. When we dress according to fashion, use the latest kitchen appliance, or take a vacation at the "in" resort we feel that we are part of a group we aspire to belong to, and that we are accepted by its members, Again, advertising builds heavily on this need that once was known as "keeping up with the Joneses," but which is apparently as old and universal as anything is in human nature.

Consuming relates to the need to love and be loved by providing opportunities to demonstrate one's feelings through gifts. From extravagant baby showers to elaborate funeral arrangements, through graduation presents and diamond rings, we express our feelings for each other by allowing the loved one to own things that took a great deal of energy to make or bring about, so that he or she can dispose of it and preside over its disintegration.

Goods used to express belonging or love have symbolic value. It is generally assumed that the more expensive the gift, the greater the appreciation or love felt by the giver, and thus the greater the obligation the recipient should feel in return,

Thus, the energy expended on the gift is returned as goodwill. Objects that convey love and belonging need not be valuable in economic terms, however. The most cherished things in people's homes are rarely items that were bought, but rather things that embody the psychic energy of a loved one, like a quilt sewn by one's grandmother, or an athletic trophy won by one's child (Csikszentmihalyi and Rochberg-Halton 1980). Thus gifts cannot be reduced to lower-order needs involving instrumental goals and calculation of exchange; at least occasionally they are expressions of relatively selfless agapic love (Belk and Coon 1993).

The Higher Needs: Esteem and Self-actualization

The need for self-esteem—to feel competent, respected, and superior—is present already in children, and is presumably active even when the lower-order needs are not entirely met. But they become fully active after survival, safety, and belongingness needs are more or less taken care of. At that point we can indulge in purchasing goods that show our uniqueness and separate us from the rest of the crowd. As Belk (1988) notes, "Evidence supporting the general premise that possessions contribute to sense of self is found in a broad array of investigations."

Goods that fulfill esteem needs are symbolic in nature, even though they often serve other motives as well. For instance, one's car could be used to drive to work, and thus satisfies survival needs; it could also have been purchased because it is safe and reliable. But if we pay extra for status attributes, the car will then become a symbol indicating our superiority and social worth.

Not all objects consumed for esteem reasons are competitive status symbols. Many are acquired because they allow the person to practice and perfect a special skill which is important to his or her identity, such as musical instruments, tools, photo equipment, books that reflect the person's interests, sports and gardening equipment, and so forth. In our study of the meaning that household objects had for their owner, reasons dealing with self-esteem were among the most frequently mentioned, sharing first place with goods that were cherished for reasons of belongingness and love (Csikszentmihalyi and Rochberg-Halton 1980).

The need for self-actualization, according to Maslow, becomes preeminent after the other four more basic needs are satisfied. It would seem that of all the needs, self-actualization has the least predictable impact on consumer behavior. A person driven to achieve personal growth is more likely to lead a frugal life, perhaps to retire to an ashram or monastery, than to invest heavily in goods. The kind of persons Maslow used as models of self-actualization—Thomas Jefferson, Eleanor Roosevelt, Albert Einstein, Albert Schweitzer—were not big spenders, and in many ways strove to become independent of the market. Yet it has been argued that certain features usually associated with the sacred realms of life, such as ritual, mystery, and *communitas,* can also accompany mundane consumer behavior (Belk, Wallendorf, and Sherry 1989).

In fact, on closer look it seems that many consumer decisions may be driven by the need for self-actualization. After all, traveling to sit at the feet of a genuine Buddhist guru entails buying at least a round-trip airfare ticket to India. The scholar in his study consumes esoteric knowledge that is expensive to produce and to preserve. Art, music, and the appreciation of luxury items may also produce transcendent experiences. Perhaps only a few extremely dedicated altruistic individuals, such as Albert Schweitzer, Mother Theresa, and the saintly moral exemplars described by Colby and Damon (1992) can be said to have pursued self-actualization without increasing entropy in their environment.

A yardstick such as Maslow's model suggests that it may be possible to measure the value of consumer behavior in terms of how various choices satisfy basic existential needs. It may be possible to answer such questions as, How expensive, in terms of energy expended, is it to satisfy security needs? Or esteem needs? For person X or Y? For a given community or nation? Having such information would allow us to make rational decisions about the value of consumer choices that currently are made without conscious awareness of the real costs and benefits involved.

This would be possible if consumer behavior were driven solely by the predictable, universal needs that Maslow and others have identified. Unfortunately, consumer choices are made for a variety of other reasons that are even less clearly understood and that may place just as great a burden on planetary resources. We might designate this other class of needs as experiential needs, to distinguish them from the existential needs discussed thus far.

How Consumer Behavior Meets Experiential Needs

The Maslowian model suggests that individuals are always motivated by some discrete, specific need for survival, safety, and so on. In reality this is not the case. In everyday life, people often find themselves in an existential vacuum where no clear need suggesting a specific goal presents itself to consciousness. Normal American teenagers, for instance, when they are paged at random moments of the day, report 30 % of the time that what they are doing is not what they want to do, and that they cannot think of anything else they would rather be doing instead. Although this pattern is strongest when teenagers are in school, it is also typical of responses at home (Csikszentmihalyi and Schneider 2000). While we have fewer data from adults. What there is suggests that they also spend quite a large span of their days in a state where, as far as they are concerned, "there is nothing to do."

This pattern is significant because when a person feels that there is nothing to do, the quality of experience tends to decline. One feels less alert, active, strong, happy, and creative. Self-esteem declines. Contrary to what one might expect, such a negative experiential state is more likely to occur at home in free time and less often at work, where goals are usually clear and attention is more readily engaged (Csikszentmihalyi and LeFevre 1989),

What this suggests is that in addition to the existential needs described by Maslow and others, we also have a need—perhaps peculiar to human beings—to keep consciousness in an organized state, focused on some activity that requires attention. When there is nothing to do and attention starts to turn inward, we begin to ruminate, and this generally leads to depression. By and large, when we start thinking about ourselves rather than about what we need to accomplish, attention turns to deficits. We are getting old and fat, we are losing our hair, our children don't worship us as they should, or we haven't accomplished much in life. As a result, our mood begins to turn sour (Csikszentmihalyi 1993, 1997; Csikszentmihalyi and Figurski 1982). The downward spiral of rumination is interrupted only when attention is again engaged by some need that suggests a goal: preparing dinner, taking the dog for a walk, or, if all else fails, watching the news on TV. Yet trying to fill unstructured time with passive entertainment does not work well; the quality of experience while watching TV is barely more positive than that of the slough of despond that awaits the unfocused mind (Kubey and Csikszentmihalyi 1990).

The experiential need to keep consciousness tuned is responsible for a great deal of consumer behavior. It could be said of shopping, as MacLuhan said of television, "the medium is the message," In other words, it often does not matter what we are shopping for—the point is to shop for anything, regardless. It is a goal-directed activity, and thus it fills the experiential vacuum that leads to depression and despair. The fact that we have to pay, that is, expend the equivalent of psychic energy, for what we acquire lends an additional importance to the activity. If we spend money, it must be worthwhile. As Linder (1971) pointed out, the value of the goods we consume in leisure becomes a measure of the value of our time. If in one hour's time I drink $20 worth of a single-malt Scotch, while listening to a stereo that depreciates at the rate of $5 an hour, in an apartment where rent prorates at $10 an hour, then it means that my time is worth at least $35 an hour—even without counting the cost of clothing, furniture, and so forth that may also be contributing to the value of my time.

Thus, consuming is one of the ways we respond to the void that pervades consciousness when there is nothing else to do. Shopping and surrounding ourselves with possessions is a relatively easy way to forestall the dread of nonbeing, even though it may have serious consequences in terms of increasing entropy.

Yet consuming, beyond a certain point, seems to contribute little to a positive experience. Contrary to popular opinion, things that can be bought do not enhance happiness by much. The evidence for this statement, while circumstantial, is quite convincing. A number of studies show that beyond a rather low threshold, material well-being does not correlate with subjective well-being (Csikszentmihalyi 1999; Diener 2000; Myers 2000). For instance, while the average American's income measured in constant dollars has doubled in the last 40 years, the level of happiness they report has not changed. Winning the lottery creates a small blip of happiness that lasts a few months, after which the lucky winner's happiness returns to what it was before. In a current longitudinal study tracking over 800 American teenagers through high school and beyond, we find that teens from the most

affluent suburbs tend to be less happy and have lower self-esteem than those from middle-class communities, and even than those living in inner city slums (Csikszentmihalyi and Schneider 2000). Several researchers have shown that excessive concern with financial success and material values is associated with lower levels of life satisfaction and self-esteem, presumably because such concerns reflect a sense of "contingent worth" predicated on *having* rather than *being* (Kasser and Ryan 1993; Richins and Dawson 1992).

In one study we correlated the happiness that American adults reported experiencing in their free time with the amount of fossil and electrical energy that the activity they were doing at the time consumed (Graef et al. 1981). If a person was reading a magazine when the pager signaled, for example, more energy was expended than if he or she had been reading a book, since producing a magazine (in terms of manufacturing paper, printing, sales, distribution, and so on) requires more BTUs of energy per unit of reading time than it takes to produce a book. Thus if there were a direct relationship between energy consumption and quality of experience, a person should be happier when reading a magazine than when reading a book. Instead, we found the opposite: a slight but significant negative relationship between the average BTU load of activities and the happiness people experienced while doing them. There was an interesting gender difference: for men BTUs did not relate to happiness at all, whereas for women the relationship was quite strong in the negative direction. According to the Department of-Energy, about 7 percent of all the energy consumed in the United States is spent on discretionary leisure activities, from traveling to snowmobiling, from skiing to TV watching. It is important to realize, therefore, that a substantial amount of this energy could be saved without impairing the quality of life, and perhaps actually improving it.

Why is there a negative relationship between energy consumed and happiness? The answer to this question may suggest a new way of thinking about consuming, one that maximizes the quality of experience while minimizing the amount of entropy produced as a result. The reason activities with low external physical energy requirements result in greater happiness is that they usually require greater inputs of *psychic* energy. Having a good conversation makes very little demands on environmental energy, but it demands concentrated attention and mental activity, and can be very enjoyable. So are activities such as reading, gardening, painting, working on crafts, writing poetry, or doing mathematics. In general, people report being happier when they are actively involved with a challenging task, and less happy when they are passively consuming goods or entertainment (Csikszentmihalyi 1997, 1999).

Consuming in the Third Millennium

Ever since Adam Smith, we have learned to say that production is justified by consumption; that the needs of the consumer dictate what the economy should provide (Borgmann 2000; Smith [1776] 1985). This relationship was so obvious to

Smith that he did not believe it was worth arguing; ever since, it has become a mantra of economics. In reality, however, the situation has turned out to be exactly the opposite: it is the imperative to produce that is dictating the need to consume. Economic forecasts are based on increasing demands: unless people buy more houses, more cars, more sporting equipment and clothes, the economy will falter. To buy—even "if" one does not have the means and has to fall ever deeper in debt—is a patriotic act. To refrain from consuming is antisocial; it is seen as a threat to the community. We have locked ourselves into a vicious cycle that forces us to increase entropy in the environment without providing commensurate value.

Is there a way to break out of this cycle? Obviously, we could not simply reduce consuming to the level appropriate to satisfy Maslow's survival and safety needs—even if we wanted to—without weakening the productive sector and causing unemployment to run rampant. But it might be possible to reinvent consumption in such a way that it would satisfy both existential and experiential needs at minimal energetic costs while at the same time preserving the economy.

The first step in this direction involves a clear accounting of the real costs of different consumer choices. Eventually this should lead to a new sense of good and bad, beautiful and ugly. If the true entropie costs of a sport utility vehicle were kept in mind, for instance, even the most attractive vehicle of that sort would seem indecently coarse. Instead we would marvel at the beauty of a car made of bamboo and powered by sunlight. But to facilitate this transformation in taste, it will probably be necessary to legislate a new fiscal policy—one that taxed goods in proportion to the amount of entropy their production and consumption entailed.

Craftspersons, chefs, athletes, musicians, dancers, teachers, gardeners, artists, healers, poets—these are the workers creating goods that increase human well-being without degrading the complexity of the world. Is it impossible to develop an economy based on a majority of workers of this kind? Where consumption involves the processing of ideas, symbols, and emotional experiences rather than the breakdown of matter? Let us hope this transition is not impossible, because otherwise the future looks grim indeed. And if the transition does come about, the *Journal of Consumer Research* will be filled with articles about music, art, poetry, and dance—the creative energy of the new economy.

In the meantime, what suggestions does this perspective provide to those doing research in the field? Perhaps the main message is that ignoring the causes and consequences of consumer behavior is dangerous, It would be unacceptable for neurologists to study an addictive drug without taking into account the pros and cons of its use. Similarly, research that deals with consumer behavior without considering the context in which it is embedded cannot claim to contribute to basic knowledge, and remains little more than applied market research.

Science proceeds by developing an agreed-upon set of measurements and definitions. For consumer research to advance in the direction foreshadowed here, it seems that agreement on the following dimensions should be useful:

What are the costs of a specific unit of consumer behavior, in terms of the consumer? The social network of which the consumer is a part? The ecological network? Such costs may best be expressed in the common language of entropy.

Even though entropy is manifested differently in psychological, social, and biological systems, at each of these levels it refers to an increase in disorder and loss of capacity to do work.

To balance the costs of consumption we should be able to measure accurately its benefits. These tend to be of a negentropic kind, that is, they involve greater order and greater disposable energy at the levels of the person, the social system, and the environment. These benefits are not always congruent with each other. For instance, the purchase of a Ferrari may help the self-esteem of an executive pushing 50, but cause conflict with his wife.

Also, it is important to keep in mind that the relation between costs and benefits is usually quadratic rather than linear. Up to a certain point, material resources add greatly to the quality of life. But where is the point of inflection after which the relationship may no longer exist, or actually become negative?

We already know that material possessions alone do not improve the quality of life. We know that excessive concern for material goals is a sign of dissatisfaction with life. We know that trying to avoid the mental chaos of everyday life by resorting to acquisitions and passive entertainment does not work very well. Yet we insist in the vain hope that we can achieve happiness through consumption—regardless of consequences. Certainly one of the greatest services that consumer research can do for humankind is to document these realities, and diffuse them to as wide a public as possible.

Vague as these concepts are at this point, the progress of scholarship in the field will greatly benefit from taking them seriously. Eventually it should be possible to develop reasonably convincing cost/benefit analyses for different options, to allow consumers to make choices at a much higher level of rationality than is possible with current criteria.

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Chapter 6
Flow and Education

Part One

David [Kahn] is right, I told him that everybody should call me Mike, but at the same time, I will repeat my last name because otherwise people ask me always after a talk, "OK, but how *do* you pronounce your name?" So let me do it once, but after that it can be Mike, The last name is pronounced *CHICK-sent-mee-hi.* It's really made up of four parts: *Csik* is a province in Transylvania between Hungary and Romania, so *Csik* is a place. *Szent,* in Hungarian, means "saint," *Mihaly* means Michael, and the *i* at the end of the last name means "of," like "of Saint Michael of Csik." My family, in fact, comes from that little village in Transylvania, but, to anticipate some other questions later, we are not related to Count Dracula. It's a different branch of the family; we don't interact.

But there is an interesting little connection with the village of Csikszentmihalyi, which is still there, which I have never visited because I was born outside of there. One of my cousins who was there sent me a picture of the entrance gate to the school of the village. The gate is made of carved wood, very ornate, and on top of thé gate, these words are carved: "*A Tudás gyökerei keserüek, de gyümölcsei édesek.*" I don't know if I have to translate—probably not—but what it means, if you translate it into English, is that the roots of knowledge are bitter but its fruits are sweet. That really struck me, when I saw the photograph a few years ago, because for over 30 years I have been trying to demonstrate the opposite: namely, that the roots of knowledge do not necessarily have to be bitter. I was convinced of

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that from my own experience and from that of others—I knew that somehow the acquisition, of knowledge can be a tremendously exciting and enjoyable process. The reason that we carve those words on schools is that schools themselves make knowledge bitter, not because knowledge itself is such.

This was an interesting, serendipitous occurrence, but, as I mentioned, for over 30 years I've been trying to understand the kind of enjoyment that I notice people who are working with passion on some kind of work—artists, scientists—demonstrate during their work. I have been trying to understand why that cannot happen more often. In schools, why don't the majority of children respond to learning with the same enthusiasm that creative artists whom I studied for my dissertation back in 1962 had—this kind of tremendous involvement with whatever they were doing, the focus on their work, and the ability to work for days without interruption. I was trying to see how that involvement, excitement, enjoyment could be generalized to children in schools across the board and not just be the privilege of these creative individuals I studied.

Motivation and Learning

My approach to learning is not the cognitive approach, which most of my colleagues in psychology have been pursuing for the last 40, 50 years, because I don't think the problem with children is that they don't understand or that they can't cope intellectually with school. I think the problem is that they don't want to get involved, they don't want to learn. I think the problem is affective, emotional, motivational, and not intellectual, not cognitive. I think we fell into the trap—and when I say w*e,* I mean psychologists who are studying children and learning—we fell into the trap of using the computer not only as a tool but as a model of how people think. While there are some similarities in the way computers and humans process information, there is the basic difference that a computer will start crunching information the moment you plug it into the wall, but a child will not. A child will be able to resist being "booted up," to use computer terminology.

Let me give you just one simple example of the kind of research that I have been doing, so you understand where I'm coming from, because my work is really basic research; I'm not an applied psychologist. So I'm trying to figure out how things work without, myself, trying to do much about it, but hoping that others will adapt and use what I find. One of the studies we did was to give teachers little electronic pagers that were programmed to go off at random moments during the class period.

We asked the teachers, when the pager went off, to write down what they were doing and what they thought their students were thinking about. At the same time, the students, who also heard the pager go off under the teacher's desk, would write down what they were thinking about and how they felt about various things—how much they concentrated, how happy they were, their self-esteem, and various dimensions.

The following example is one that, unfortunately, is very typical, and probably you, being teachers, know about it, although probably not as much in Montessori schools as regular schools. This was a class in which the teacher, a very good, respected teacher of history, was describing how Genghis Khan moved down in 1215 from Mongolia and tried to conquer China but bumped up against the Great Wall and so had to go all the way down south and then turn around and go up north on the other side so that he sort of outlined the Great Wall, and he finally got to what now is Beijing and took over. When the pager went off, the teacher wrote down that this was what he was talking about. This was what the students were thinking about: Of the 27 students in the class, 25 didn't mention anything vaguely connected with China; they mentioned their dates, their coming football game, how hungry they were, how sleepy they were, etc. There were 2 who mentioned China; one of them said, "I always wondered why Chinese men wore their hair in pigtails," and the other one said, "I was thinking about this great dinner we had with my family at the new Chinese restaurant." There was no mention of Genghis Khan, 1215, the Great Wall—none of that.

This is the problem we find ourselves in, in teaching, that we have all the information—we have all the tools for providing information—but that information is not going to make any difference unless it's attended to, unless the student allows that information to come into his or her head, I have been always intrigued by the question of motivation. What makes people want to process information or do any other thing. And that's where we come back to the question of creativity, because that's where I started asking about these issues, in looking at creative people. Although we'll talk about creativity much more tomorrow, let me just read two excerpts from interviews I made with two very famous inventors, very successful physicist-inventors who have developed things like the commercial application of jet engines. This is an 82-year-old man who is still involved in inventions. The other one, 76, has over 100 patents. This is what he says, the physicist-inventor:

> Oh, I love to solve problems. If it is why our dishwasher does not work or why the automobile doesn't work or how the nerve cells work—anything. Now I am working with Peter, my assistant, on how the hair cells work. And it is so very interesting. I don't care what kind of problem it is; if I can solve it, it is fun. It is really a lot of fun to solve problems, isn't it? Isn't that what is interesting in life?

So that is a typical answer from, in this case, an over-70-year-old man who, after developing all kinds of patents, becomes interested in how the nerve cells work. I don't know why, but that's what he is interested in.

Here is another one. He is in his 80s, still working on literally hundreds of new patents. He has 2,000 projects filed in his work room, which looks like a library, and has worked on these 2,000 patents on and off. He says:

> Yon invent for the hell of it I don't start with the idea, "What will make money?" This is a rough world; money is important. But if I have to trade between what's fun for me and what's money-making, I will take what's fun.

He acts, and all of these people act, on what they are saying. They are actually practicing what they are saying. This is what I suppose would be, in terms of the Montessori language, the normal way people learn, or the normal way to respond to problems, the normal way they get involved with things that are new and interesting and mysterious. Of course, we know, unfortunately, this is not the norm after the child starts going to school and begins to think that learning is something that has to be resisted and fought.

The Flow Experience

Let me go back, then, to this experience of enjoyment and fun that these people mention they get from getting involved in their work. Originally I interviewed some 100 people working in areas like art, music, and dance, because these people were obviously doing things for which they didn't expect to be rewarded, but they still spent enormous amounts of time and energy practicing these activities. I figured that, in the practice of these activities, there must be something which is so attractive, so enjoyable that you give up the pursuit of the traditional rewards like money and status just in order to be able to experience that activity. This—what I ended up calling the flow experience—is what you feel when you're doing things that are so enjoyable that you want to pursue them for their own sake. And, of course, the question is how can we apply what we learn from these artistic and aesthetic activities to everyday life?

The Conditions of the Flow Experience

1. **Goals Are Clear**—*One knows at every moment what one wants to do.*
2. **Feedback Is Immediate**—*One knows at every moment how well one is doing.*
3. **Skills Match Challenges**—*The opportunities for action in the environment are in balance with the person's ability to act.*
4. **Concentration Is Deep**—*Attention is focused on the task at hand.*
5. **Problems Are Forgotten**—*Irrelevant stimuli are excluded from consciousness.*
6. **Control Is Possible**—*In principle, success is in one's hands.*
7. **Self-Consciousness Disappears**—*One has a sense of transcending the limits of one's ego.*
8. **The Sense of Time Is Altered**—*Usually it seems to pass much faster.*
9. **The Experience Becomes Autotelic**—*It is worth having for its own sake.*

But before we do that, let me talk a little bit about what these activities are like. After I did these original interviews, we went off and, with colleagues around the world, we collected over 8,000 interviews in various cultures—in Japan, Korea, India, as well as Europe and many other places. We were able to extract from all of these interviews certain conditions that seem to be always there when a person

really enjoys what he or she is doing, when a person wants to do something for its own sake, regardless of whether they get rewarded for it in any other way. This is that flow experience that I would like to describe now. Originally, as I said, I started studying artists, then went, to look at athletes, mystics, and finally ordinary people. When we started studying these flow experiences in everyday life, I developed the Experience Sampling Method (ESM), the method of using electronic pagers so that we could collect responses from everyday life—so we can pinpoint very precisely how and when people do feel this type of experience.

The first thing that people report that happens is this extreme concentration and focus, what some people call one-pointedness of mind—the opposite of what happened, for instance, in that classroom that I described with China. In everyday life, it's not very sure that your body and your mind are in the same place. You may be sitting with 30 students in front of you and you assume that just because their bodies are there that their minds are also in the same place. But that is rarely the case; you don't have this merging of action and awareness, this merging of mind and body. But when you are in flow, that begins to happen. You begin to become so much a part of your actions that your mind cannot have a chance to go off on tangents, to think about a date or a football game or lunch. The point is that human attention cannot be split more than a very few ways. For instance, if there are four people around us talking, each one talking to us, how many conversations can we actually listen to? Not more than two. Some people can process three streams of vocal information, but that's very unusual. Usually we can process or pay attention to two streams of input and understand what people are saying. That is true of any type of information. We cannot think about how we feel—for instance, how hungry we feel—and at the same time, say, balance the checkbook or sing a song. We either do one or the other. There is very little we can do to overlap streams of information. That's why the focused concentration means that you are only paying attention to what you are doing right there, and all of your attentional processes and capacities are used to do whatever you are doing.

When the concentration reaches a certain point, people begin to feel the condition that often is described as "ecstatic." *Ecstasy* sounds like a very mystical term, and it can be that, but in its original Greek sense, *ecstasy* simply meant "to stand to the side" or "to step to the side." The experience of standing to the side is that you are not a part of the routine of everyday life anymore. All of us have to follow certain routines. We get up in the morning, we turn off the alarm clock, we brush our teeth, we do a whole series of things from breakfast, driving to work, then work. All of that is ordinary, everyday life. But we cannot live just by doing that. Otherwise, we become a robot; we become a machine that's driven by the needs of the body or the social needs. This ability to have an experience of ecstasy is essential to survival in any culture. In fact, if you think about it, in almost every culture that we know about, from ancient Greeks or the Mayas or the Egyptians or Chinese, everything we know about those cultures, everything that remains—the architecture—is all about ecstasy. We have temples, we have sports arenas, we have theaters that have survived. All these places are places to experience ecstasy, to step outside of everyday life, to have a chance to reflect, to experience a

different way of living, whether it's hearing a symphony or seeing a theater performance or praying or being in a religious context, these are all ecstatic experiences. The interesting thing about people who get into flow is that they don't really need the architecture or the social organization of ecstasy; you can get into an ecstatic state under your own steam, so to speak. You can make it happen; you can find it partly by simply the concentration that you are achieving, which cuts you off from the normal stimuli of everyday life.

One other characteristic that's very important is that when people get really involved in something that turns out to be enjoyable, they do it partly because they know very clearly what they have to do from one moment to the next. For instance, if you are playing a musical instrument, you know which note or which chord you want to play next, just second by second, so to speak. If you are playing tennis, you know where the ball has to go every time you hit it with the racquet. This clarity of goals is very important. It is not just the goal to succeed at the end of the game. For example, a climber's goal, if you are a mountain climber, is to get to the top of the mountain; that seems to be the goal of climbing. But that's really not what makes climbing enjoyable; it's every step that you make, and where you have to figure out where to put your foot down, how to use the hand-holds—those little goals are what directs your attention, what makes you able to focus—not the overall goal of getting to the top of the mountain. That's too far; you can get distracted by it. And the same thing in everyday life: If you have a goal to get along with your son or daughter, that's an overall goal, and it's very vague. The point is to break that goal into doable, clear steps that you can pay attention to and focus on and from which you can get feedback.

That's the next part. In flow, a person always knows how well they are doing. If you are singing or playing a musical instrument, you hear the sounds you are making and you can correct yourself; you can improve on your performance. Same if you are playing a game—tennis, let's say—you see where the ball is falling all the time so you get feedback. It's because of the clarity of goals and immediate feedback that the attention keeps getting carried and focused. If you don't get feedback, if you don't know how well you are doing, then you might start getting distracted. Your mind has a chance to pay attention to other things because it doesn't have to monitor the information coming back. That's how distraction comes. Distraction comes by not knowing what you have to do and by not knowing how well you are doing. These are all things that contribute to the concentration and that make the concentration possible, in a sense.

Another thing that everybody mentions is that they feel that what they are doing is more or less possible to do, given the skills they have. Another way of saying this is that the opportunities for action are in balance with the capacity to act. To make it very simple, the challenge and skill are in balance. If there is too much to do, if the demands are too high, the challenges are too high, you begin to feel anxious. If the challenges are too low, given your skills, you begin to feel bored. Being able to keep that balance is very essential. These are all things that you find in games, in artistic performances—for instance, if you are playing tennis, again, you are not going to play very often against somebody much better than you or

much worse than you. You try to play against somebody at your own level of ability. The same thing in chess: You always try to play against people on your own level; otherwise, it's not fun- You either get anxious or you get bored if you play against people on a different level.

Games and art forms are, in a way, engineered to make this balance possible and to give clear goals and to give immediate feedback. In everyday life, we don't have that. In everyday life, things are much more shapeless, amorphous; you don't know exactly what you have to do moment by moment, or you have too many things to do or too few. And so the question is, yes, we have ways to get into ecstasy through art, through games, through sports, but we don't know very well how to get into ecstasy in everyday life, in the kind of things we have to do which are not sport, art, etc., but are work or family life. There we are kind of helpless. We begin to feel bored or anxious. The whole purpose of this inquiry as to what makes flow possible is to see how we can apply it to everyday life, to work, to school, which are not structured to make flow happen, but where you can make flow happen if you know how to do it.

When those conditions are present, people begin to report a sense of serenity, of losing the worries of everyday life—the kind of worries that in everyday life kind of hang on your consciousness, that slow you down and make you feel depressed. Those worries disappear. Again, it's very simple why they disappear. They disappear because you don't have enough information-processing capacity both to pay attention to what you're doing and to worry. You can't do the two at the same time. If you are an athlete who is running in a competition and you start worrying about your exams or your love life or something, you're probably going to slow down compared to the others. If you are climbing a mountain and you start worrying about your income tax, you might fall down a few thousand feet. This is a simple result of the concentration that is required when challenges and skills are in balance, goals are clear, and feedback is there. Then you begin to get immersed in what you are doing and you forget the usual problems. One of the things you forget is your self, in the sense that the ego, the kind of facade that we all try to present to the world, no longer matters, because, again, that's not something you can think about while you are doing these things.

Why is that important? It's important because we find, especially with the beeper technique, that the worst moments in people's lives are when they become self-conscious: when they look at a mirror or even if they walk in front of a store window and see themselves reflected. Those are the moments when we start worrying about getting fat, getting old, losing our hair, or, if you are a teenager, about getting pimples on your face, or whatever. Even if there is no mirror and there is no store window, most of us are always aware that people are judging us and they are saying, "OK, he's kind of not very smart; he's not very good-looking; his tie has grease spots on it," whatever. The fact is, self-consciousness is a real burden. It's a burden that all of us carry in everyday life, and it makes us defensive and feeling inferior. This happens to children in school a lot. They are always worried about what their peers think about them. This self-consciousness in the classroom is one of the reasons why they don't process the information the

teachers give, because there is this barrier of the attention being spent trying to look smart or look cool or look whatever. That takes away the attention that, ostensibly, should be used to process information.

That is one outcome of flow, that the ego or self-consciousness disappears. But there is an interesting paradox there, because after an experience of flow, people experience their own self as being stronger and more vital than it was before. In a sense, the sense of the self disappears during the experience but afterwards comes back stronger than it was. Not only that, but there is even very often a sense of transcendence, that is, that you are no longer alone within your own little defensive self, but you are part of something bigger, larger. If you sing in a choir or play with a group, a symphony or something, one of the most obvious things that people report is that they experience their own voice, the music they are making, as now being part of a much larger unit and it's a feeling of expanding the boundaries of the self. Of course, in religious experiences, that's very common. But it's also common in artistic ones, in sports, when you're part of a team and everybody's working together, or if you're dancing, the choreography brings you in with others into this kind of system which is larger than yourself. That transcendence of going beyond the boundaries is a common experience. Even surgeons, who are, among professionals, some of the most addicted to the flow they get from the profession—they like to cut up people, they like to sew them back together—one of the great things about surgery is the teamwork that happens when everybody—the nurses, the technicians, the anesthesiologist—are all meshing together into a greater unit.

Another thing that is always reported is that time seems to fly, that hours pass by in what seems like minutes. Again, this is part of the same syndrome, namely, you are no longer monitoring the passage of time because you are too involved in what you are doing and therefore time adapts to your experience. It's no longer something that you have to worry about, a hand on a clock moving around, in fact, sometimes it's the opposite experience, For instance, figure skaters do one of those triple-toe loops or some very difficult move which takes a fraction of a second, but they experience it as expanding to minutes, to almost a quarter of an hour, because they see so much in that short period—so much is rushing in and so much attention is focused on that movement that it seems to take a long time. It's not necessarily that it goes faster. What is typical, though, is that what you do dictates how you experience time instead of the watch telling you what time is like. Again, this is something which, in everyday life, we may experience—time slowing down and speeding up—but usually we have to really watch the clock and let the clock decide how much time is passing, not how we feel. That's one of the obstacles to getting involved in flow, especially in schools.

The interesting thing is that when those conditions are there, people tend to want to do what they did to get that feeling, even if there is no other reason for it except to experience it. In other words, the activity that produces flow becomes its own reward. You may start out hating what you're doing. Many people, for instance, including myself, resisted using personal computers for a long time because I like to write; I like to look at my handwriting, and I like those big yellow legal pads that I use to write on. But once you begin to use the computer and you

see the options, the opportunities, and you develop a little skill and you begin to see what you can do with it, then you can begin to enjoy it and you become addicted to it That's why that last condition is so important, because it tells you that you can, in a sense, change things around, that you can start with something that the child doesn't like to do or is prejudiced against or feels inferior to, but if you can make the other things come in—the clarity of goals, the feedback, the balance of challenge and skill, the uninterrupted concentration on it—you have a chance. It won't work all the time, of course, but there is a much better chance for a child to take on this activity which didn't make much sense at first and to get involved with it

These are the major conditions that people report all over the world. It's not just Americans. It's amazing how universal it seems to be, regardless of social class, education, culture, gender; this phenomenon, this inner state, seems to be universally present. What people do to produce these conditions may vary a lot. In some cultures, there is much more meditation that produces this—let's say, in northern India, if you ask people, "Do you ever feel these things?" they will tell you probably that they feel it by doing some meditation or some yogic practice. In other cultures, they may do it by racing motorcycles or, if you talk to Navajos in New Mexico, they will tell you that they feel this by following the sheep on horseback. So the kind of conditions that produce it may be very different, but whenever a person is doing something which they enjoy doing and they want to do it for its own sake, they seem to come up with the same kind of experience.

Matching Challenges and Skills

As I said before, two of the most important parameters for the flow experience are the challenges that the person reports and the skills that the person possesses (see Fig. 6.1). When the challenge is much higher than the skills, or the opportunities are much greater than the capacity of the person, then you would expect anxiety to result. In the opposite situation, where you feel that your skills are not being used, that there is no opportunity for you to express your skills, then you would be bored. The flow experience seems to occur in that diagonal; in fact, it does occur in the diagonal where there is a kind of one-to-one ratio between challenges and skills.

The reason I have apathy down here is because of what happens—and this is something that we didn't expect, really, but we found out through empirical research—we found that once you develop skills in an activity and you have moved up and you've developed a high level of skills and you have high challenge, to have to return down to what you were doing before is almost impossible, If you do, you feel a sense of apathy and not flow anymore. For instance, when you start playing music, let's say the piano, you have very few skills, and at that point you can get flow by just trying the scales and being able to do the scales. But as you develop the ability, now you can do the scales very well. Your skills have improved. Now it's no longer flow; it's boring. So at that point, you have to up the

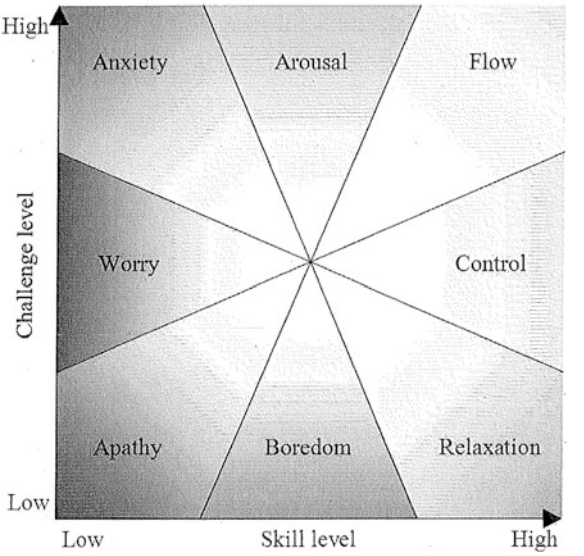

Fig. 6.1 Ratio between challenges and skills

challenge; you have to start playing a piece that gives you more challenge, a piece that is more difficult. Typically you move up that diagonal slowly. You get a little anxious because somebody gives you a piece to play, let's say, that you've never played before, and it's difficult, so you feel anxious. If you want to go back to flow, you have to develop skills to do it. If your skills are too high, you have to get the challenge up. Generally, we move up like that, step by step, getting out of flow, getting back into flow. But once you have learned to play Beethoven and Bach, playing "Three Blind Mice" is very frustrating.

When we do our studies of everyday life, with those electronic pagers that I mentioned, we can establish over a week's period—each child, for instance, fills out a form 50 times—how much challenge they find in whatever they're doing and how much skill they have, whatever they're doing. For each person, we can find the average level of challenge and the average level of skill for the week. Each person will have a slightly different average. We can put all of these averages together and identify at least eight different combinations of challenge and skill over the week. We have, now, about a quarter million of these responses, not just from students but from adults and so forth, and we find that, in fact, most positive experiences of flow occur when both challenges and skills are above their average point.

When they are in this other situation, they feel something that we would call control. They feel fairly happy; they feel in control because the skills are high and the challenges are not so high. Here, this is a condition of relaxation. This is where they feel bored. This is where they feel apathetic. Here they begin to feel worried because the skills are low and the challenges are starting to go up. So there is worry here. Here is anxiety. This position, where you have middling, average

skills, but high challenges, is what we call arousal because people there show signs of wanting to do something, feeling that they are pressured or stressed, but it is not anxiety. Anxiety is when you feel your skills are very low.

The interesting thing is that the best overall feeling is when people are in flow, of course. That's when they feel everything: They feel happy and they feel concentrated. When they're in arousal, they feel concentrated but not happy. In control, they feel happy but not concentrated. So in flow everything comes together. But arousal and control are two good positions to be in for learning because these are the two positions from which people can move easily into flow. From arousal, of course, all they need to do is get a little bit more skill and they will be in flow. From control, all they need is a little more challenge and they move into flow. Those two situations are *almost* as good as flow. They are not quite as good, however, and that's why flow keeps attracting people to improve skill and improve challenge.

But most of everyday life is really spent in these other areas, we find. A lot of it is spent, for instance, in apathy. What do you think people would be doing when they are signaled and they respond that they are in apathy? What kind of things would they be doing? TV is the majority of these. The other is sitting in the bathroom. About 70 % of the time you are watching TV you are here. There is some flow in TV, when you are watching a sports event or a good drama, not watching the news, usually. Boredom is usually when you are doing maintenance activities—washing dishes, dressing, shopping for food, etc. That seems to be mostly here. Relaxation is mostly with family, with friends, social situations, or reading for pleasure. Worry and anxiety happen a lot in school; they happen a lot on the job.

In school, by the way, there are certain subjects that are much more likely to be in the anxiety region, as you would expect. Math and science tend to be there. Social sciences and humanities tend to be here, in boredom. But luckily, occasionally, school subjects are in flow, and that's really what the whole enterprise is that we are all about—I think you as well as I—to try to make as much as possible of the productive activity kids engage in happen in flow. Because people will seek out flow anyway. If they can't find it in school, they will find it somewhere else. And very often they find it at the arcades where they play video games or, if you are less lucky, they will find it by breaking into cars or burning down buildings, which also produces flow.

Flow is not necessarily a good thing for society. Flow is like energy, and energy you can use to cook a meal or to burn down a house. You can use it for good or bad purposes. Flow is a source of energy which people seek out, and I think the goal of educators is to make sure that the flow will be directed, the energy will be used for productive purposes and not destructive ones. That's nothing new, really, because that's what Plato said 25 centuries ago, that the main task of educators is to teach young people to have pleasure in the right things. Somehow we have forgotten that. We think that we can force down the throat of children the right things, that somehow just by making them afraid or disciplined, they will absorb these things. They may do it, but under duress, and then the need for flow will manifest itself in

ways that are destructive. Those are some of the parameters of what I will be talking about, and since it's been an hour, I'd better stop right here.

Part 2

I want to continue talking about the conditions that make flow possible, although I mentioned some of them before. But up to now I was talking more about the quality of experience, what people actually report when they are in flow, that is, the characteristics of the flow state. I think you probably have already applied in your mind the notion, "OK, if those are the characteristics, then this is what we have to do in order to make them happen." But just to make sure, let's go through what those characteristics are that facilitate the flow state. These are not going to be very specific because to make them happen specifically you have to know what activity you are involved with. Of course, as teachers, you have certain common problems, common tasks to accomplish. Depending on what it is that you are trying to do—whether it's science or math or music or humanities or literature—you have different tools to work with. Your problems will be somewhat different depending on the kind of children you are working with, the kind of subject matter, even the kind of room you are working in, the kind of educational supplies you have. My task is to give you general principles that can be applied across the board, not only in schools but also in jobs and in your personal life. How you apply those principles requires your own creativity and your own thought. In the question-answer period, we can go more into detail; if you want me to try to be specific, I will try to be. But in my presentation I will give you more the general principles, the general conditions.

Characteristics That Facilitate Flow

In terms of what we talked about before, it's of course clear that one of the things that you would want to do as a teacher is to put yourself in the shoes of the students and figure out how you can make the child understand why this particular task is important. Many times, children will learn what they're learning on faith, to put it kind of bluntly. They don't really understand why they should be learning this. They don't know what the purpose is, even to do square roots or the purpose of doing calculus or the purpose of learning grammar. These are things that, for them, are really pretty foggy. Often they are foggy to the teachers, too, I must say, but if you don't know why they are doing it you'd better find out and then try to communicate it. All kids going to school know that they're going to school because by going to school then 13 years down the line they will go to college and then innumerable years later they will get some diploma that will give them a job and they will be able to practice as doctors or lawyers or engineers or whatever

they decide to do. Those goals are clear, but they are so remote that they have really nothing to do with this moment this class, this particular moment of the day.

Your task as a teacher, I think, is to bring those goals alive moment by moment, not just in terms of "OK, if you are a good boy or girl, 20 years from now you will enjoy this education; you will make some use of it." If that's the only goal, you can bet that the kids are going to be bored or out-of-it for a long time. Of course, when they finally get their education and get their diploma, they will start on a whole new set of future rewards. They will say, "OK, you are starting now as a junior member of this profession and maybe 20, 30 years from now you will get your rewards." It's always in the future. It's always 20 years from now, It's always 5 years from now. If you don't learn to enjoy the moment, if you don't know why you are doing it moment by moment, you keep postponing the rewards of life. You keep postponing the payoff for what you're doing and you end up fairly miserable, knowing that you have wasted all your life doing things for which you expect to get a reward down the line but never at the moment. This obligation we have as teachers, to make life count moment by moment to the students, is something we have to take seriously. The first thing is to make sure that the kids know why they're doing something and why it is important to learn this particular thing.

Again, the notion of feedback. There are many different types of feedback. One feedback is for the teacher to say, "You did well" and pat the child on the back or whatever. But the more important job, I think, with teachers, is to be able to teach the kid to get feedback for himself or herself, so that they are no longer dependent on your response. They are no longer dependent on a grade, but they can tell whether they are doing it right or wrong. In fact, an expert is someone who can give feedback to himself or herself in a job. We want the child to be an expert. Even at the lowest level of learning, you should be able to give the tools to the child so they can monitor their own performance. That's easy when you are working with something concrete and material: The child knows, when they're building a tower of blocks, whether or not the tower is standing up. Once the tower falls over, they get the feedback, "I did something wrong." When you are working with clay or you are working with paints, with music, etc., you can tell the feedback because you get it from the materials. It's much more difficult to learn to get feedback when you're working with things that are less concrete, like literature, like writing a good line of prose or a good line of poetry. There you have to develop the skill to know, "This is good; this is bad," and give the feedback to yourself.

By the way, regarding these two conditions of goals and feedback, somebody brought up during the intermission the question, "Well, yes, you can get clear goals, clear feedback when you are following a piece of music or when you are playing a game where the rules are clear, but how do you get clear goals and clear feedback when you are working in a creative activity, when you are a painter, when you are a poet, when you are composing a piece of music?" That's a very good question because, in fact, when you're working at a creative activity, there are no clear goals; nobody can tell you what's the next step that you should take. Nobody can tell you whether what you're doing is good or bad until maybe after

you are dead. That's not very useful. How do you get to enjoy what you are doing if you are involved in a kind of creative, open-ended work? The answer is something I learned from our studies where we followed up artists after a long period of time—20 years after they left school. What you find is that the artist who has not learned how to set goals moment by moment and the artist who has not learned to say whether this stroke of the brush produces a good color—if they can't tell that, they will drop out of art very soon, unless they become very successful immediately, which is almost impossible. If you don't get the extrinsic reward of success and you don't get the intrinsic reward of knowing you are doing a good job, then you give up. Why do something for which you don't get any results? If you are an artist and you are painting, what kind of feedback can you expect? Well, you can get the feedback of a gallery owner or a collector who will buy your work or you get written up in the paper, but that's so far away that you can't count on it. You have to get feedback immediately. That is the feedback of enjoying what you're doing, of saying, "Yeah, this color really goes well next to the other." If you can get that—and maybe nobody else thinks so, nobody else thinks those two colors go well, but if you do, if you really have an internal standard of what's good and bad in your painting—then you will be able to persevere even without external recognition, external reward. But you have to have that or you give up. Same thing with a poet. If a poet or a writer cannot tell after writing a line or a page or a paragraph, cannot say, "This is really good," and can't believe it and doesn't feel it in his guts or in her deepest conviction that, yes, this is good, or it could be improved—you can also say, "This is bad," of course; in fact, most of the time you say "This is bad," but then you can change it; you can improve it. But if you cannot tell whether it's good or bad, then you are left in limbo, with no information and no kind of rule or goal for how to go beyond that.

So in creative activities, the goals and the feedback are not clear and you have to learn to produce it yourself, but even when you're teaching a child, the ultimate service you can give a child, the ultimate gift you can give a child is to teach the child how to develop their own goals and respond to their own feedback, give feedback to themselves. That's when they become autonomous; that's when they become free of the system which administers rewards, often very erratically. But if you have the internalized system, if you have learned what you think is good or bad, then you are free; you are no longer dependent on the outside.

And, of course, matching challenges and skills—that is one of the most difficult things to do in a regular school where a teacher is sitting in front of 30 students with very different levels of skills. How do you give them the appropriate challenge? How do you give each child the appropriate challenge? One thing that I was impressed by, visiting the Montessori school I visited north of Chicago, was that, in fact, the teacher doesn't try to do that, at least in the school I saw. It's the environment, the different materials, the different relationships between children which will enable the particular child to find the right level of challenge, given what's available around. So the teacher doesn't have to beam an average message to the class, which is what happens in normal schools, where the teacher has to talk to the average, and therefore some of the kids will feel over-challenged and will

feel anxious; others will feel that the stuff the teacher tells them they already know and therefore they are bored. So trying to fit an average message to a classroom of 30 kids almost for sure will miss an awful lot of kids. If you don't try to do that—as was the case in that Montessori school, where the kids could seek out their own level of challenge because there was enough in the environment, in the classroom, to engage a wide range of children, and the teacher's job was simply to connect the kid with the right level of opportunity for learning in the environment—you are much ahead of the standard classroom situation in that sense, if you are doing that.

In my schooling, 1 had the most intense learning experience in fifth grade, when I happened to be in a village in Hungary where we were cut off because the war was coming and we happened to be in a village and we had to stay there for almost a year. This village had a one-room class where kids from kindergarten to eighth grade were in the same classroom with one teacher. I learned more there than in the elite schools that I went to before and after, because this teacher took this job as being kind of an orchestra conductor. He never lectured. He never stood up in front of the class. He just matched the kids in little groups every day, depending on skill levels. If there was one student who was good at math, she would work with those who were a little below her and if one student was good at writing or reading, he would take another group and work. All the teacher did was match up and form groups and walk from one group to the other and see what was happening and nudge a little here and nudge a little there. But we were always busy; we were always involved. Practically all students had a chance to become teachers beyond the fourth grade. Every older student had groups of younger students. That seemed to work very, very well. Of course, it takes more skill to do that than to stand up and lecture. Anybody can do that; it doesn't take much skill. But to run well this type of learning where you are trying to find the best way to match skills of students, that's much more difficult. So there are different ways of doing it, and I think you probably do it quite well, from what I can see, and that's not a problem in your type of schooling.

The other thing to make flow possible in schools is, of course, to try to minimize distractions. Here are three that seem to be major types of distraction in schools from our research. The first is what we call threats to the ego. Threats to the ego involve mostly making the student feel vulnerable and stupid and inferior. Again, good teachers don't do that, but it's amazing how often it happens anyway in regular schools. Using pagers, for instance, we end up in situations where we page a student, let's say, at nine in the morning in the first class, and in that class the teacher makes the student feel conspicuous by saying, "You really goofed up this time; this was a stupid answer" or something. Then we follow that student for ten times that day with the pager and that student never thinks about the subject matter for the rest of the day. He or she is still thinking about being made conspicuous in front of her friends in that class. All the student writes down are nasty cracks about the teacher and is still ruminating about that event, is not taking in the algebra or biology or English—that goes by; all they can think of is how they can get back in the good opinion or respect of their classmates because, for most of adolescence and late childhood, the most important thing is to be accepted and

respected by your classmates. Making a person feel stupid or vulnerable in front of the class is a sure way to cut off learning and flow for the rest of the time.

The other way, of course, to invoke self-consciousness is by praising a student too much in front of the class, because that also brings the self-consciousness to the fore. You are now worried that your classmates will think that you are a teacher's pet or you are trying to ingratiate yourself, so giving too much praise is almost as bad as putting down a student in front of the class. That's one typical thing.

The other one is interrupting, changing goals arbitrarily, and that's again something that happens less, I think, in Montessori schools, from what I've seen, than in other schools, where there is too much emphasis on the clock; there is constant interruption from the loudspeaker and whatever. Children are not allowed to follow the organic development of their interest in a way that is necessary for somebody to really experience flow; they're kind of pulled every period into a new set of goals, a new concern, and that is not very healthy for this kind of experience. That's one reason why most kids really get the deepest flow experience from extracurricular activities, when they are doing drama or orchestra or working on the student paper or doing athletics, where there is a more realistic kind of rhythm of involvement instead of this jerky exposure to information.

Another thing that would help is focusing on the process rather than results. One of the obstacles is when a child gets the message that the only reason to play music, to learn music is so that they can end up in Carnegie Hall 20 years later or something, or that the only reason to learn to read and write is so they can get a job. When you focus too much on results, you communicate to the child, "This is not fun. The only reason to play music is so you can get a good job or fame later on." And so you can spend 15 years playing music and not get any enjoyment, and what's the point of playing music if you don't enjoy it? That's the whole reason that people invented music: because it transports you to a different plane of experience while you are listening or playing. If you can't get that, hoping that 20 years from now you'll be at Carnegie Hall is not going to do you any good.

One of my friends, who went through some of this really traumatically, is a pianist named Lauren Hollander, who was a child prodigy and was playing with the Philadelphia Orchestra when he was 5 years old. He was an incredible pianist. But his father was a member of Toscanini's NBC Orchestra; he was the first violin there. He would come home and criticize his son no matter what he was doing, what he was playing. And Lauren loved to play the piano, but whenever he heard the gravel scrunch when his father's car was coming home in the evening, he would tense up, close the piano, and try to hide because he hated to be constantly told that "You are not doing this well; you have to do better." When he was 13 years old, he was playing again on the stage with the Philadelphia Orchestra, and he was playing a Rachmaninoff concerto and was doing very well, but during intermission he went back and his father said, "Well, you made a miserable passage in the slow part of that movement." He went back to play the second part of the concert and his hands froze, and it took him 8 years to get his fingers moving again. He is now playing again and recording, but he spends most of his

time running summer camps for kids who had the same experience. There are lots of them out there. It's not just the guy in the movie *Shine,* but there are thousands of kids who have musical talent who have been so scared and driven by their parents or by their teachers that they have come to hate music. And if you hate music, why would you do it?

A lot of what we do to children is not as extreme, but it's in the same category of focusing on what you can do with what you learn or what you will be able to do 20 years from now. That is the opposite, in a sense, of these immediate goals that you have to teach, the first point on that list. You are always postponing the results, the goal. On the other hand, to turn this around, we find these people who should enjoy music and don't because we are scaring them; on the other hand, you can take something that is not very enjoyable in itself, like math, learning math, which most kids and most grown-ups think is horrible, and you can make that into something fun.

I'm not saying you can forget the external goals and rewards, because the kids will grow up and they will have to use their knowledge in a real-life situation and so that's important. But, unfortunately, very often, instead of keeping the tension going between the enjoyment of the moment and the long-range result, we sacrifice the moment for the sake of what will come in some distant future.

Another point, of course, is allowing control and freedom. Again, in the Montessori system, it's much easier, from what I know and what I've seen, to make that happen, because the child does have choice to a certain extent. Of course, the overall choice of going to school or not is not there. We haven't yet found a way of letting the child actually choose to go to school every day. That is still forced. And that's very difficult to get away from. Schools would have to improve tremendously before we could allow children that choice. But once the child is in the environment, the amount of choice is much greater in a Montessori than in a regular classroom, where we are afraid of giving kids control. Of course, in the Montessori system, the reason you can give more freedom and more choice is because the system has created an environment where the child, in a sense, cannot go wrong. That is, there is enough interesting, useful, growth- producing material to catch the child's attention so that we can allow that freedom and choice because we figure that the outcome is going to be productive whatever the child does in that setting.

If we think more about it we say, "OK, how can we do even more of that?" In other words, how can we give more control and freedom, given what we know now about the system? The way to give more control and freedom would be to give even more interesting options and more productive materials so that the child can take more and more initiative and you can step further and further into the background. The whole ideal teaching situation is obviously one in which the child takes the initiative and the teacher becomes simply a kind of a traffic cop—that's not a good analogy—more like the conductor in the orchestra—that's a better way of saying it. The point is that if the child becomes intrigued, if the child becomes self-motivated, autonomous, then you have done the greatest service you can do;

you have really achieved what teaching can be about, which is to set the child on a course of lifelong learning.

The kind of schools we have now are predicated on the idea that when children finish school, they will burn their books, forget everything they learned, watch as much TV as possible, and not do any more learning because they have been so burned by the whole experience that the last thing they want to do is to keep learning. That's, unfortunately, the way schools operate. You see that, very often, the more rigorous the school, the more academically proficient, the more that's true. For instance, in Japan, the high schools and the grade schools are so efficient and effective, but there you see that most kids who go through that educational system, once they can shed the academic thing, they do it with a vengeance. Obviously, there are lifelong learners in Japan, too, and I know some very amazing people who keep learning, but the typical effect of that school system is not promoting lifelong learning, nor does our school system here, the regular school system.

What you want to do is to give the child the freedom and the motivation to go on learning for the rest of life. The beautiful thing to see about these people I will talk about tomorrow, these people who end up leading creative lives, is that they are 85, 90 years old and they are still learning and enjoy learning at that age. If you can do that, you are really going to be in a very successful situation.

I think these were the main issues that I wanted to talk about. The question is, "How can you make those conditions more typical of the situation in which you are at that time?'' As I said, the answers I've given are not terribly complete, but I think they give you the general principles of clarifying goals, providing feedback, matching challenges and skills, avoiding the kind of distractions that interfere with concentration and involvement, and, finally, finding ways to expand the control and freedom that you may already have in the classroom but which we can go a long way to expand so as to achieve that kind of lifelong learning that is the goal of good teaching.

Questions and Answers

Q: *What do you do with a disruptive child who then falls out of the flow channel altogether? Maybe you could give a theoretical response, since we are building a theoretical structure.*

A: The problem is that that child is disrupting other kids' opportunity to experience flow, too. What you would expect in such a case is that this child is not seeing the opportunities as opportunities. In other words, the challenge we give kids is an objective challenge, but whether that will be registered as a challenge to the kid depends on that kid's accepting this as a challenge. What counts is not the objective challenge, but the subjective challenge that the child perceives. There may be a very great difference between the child's perception and what's there.

If a child, for instance, feels overwhelmed by the challenges present, if he's anxious, he or she is not going to necessarily develop the skills to be able to go into flow, but the other response which is open to the child is to deny the challenges. So you kind of fall down into the very bottom of that flow channel. In other words, you say, "This is not interesting. This is not for me. There is nothing for me to do." That response, which would suggest that you haven't given the child enough challenge, may in fact mean that there are too many challenges. The challenge may not come even from the school; the challenge might be at home. The kid is too worried about his parents, too worried about his home life, and at that point cannot deal with the challenges, so he denies that they exist and tries to climb down into a little, safe place where there is nothing to do. Maybe that is not necessarily a stable position for the child, either, because he may then try to show that he is better than the others, so he will try to put the other kids down or to disrupt things.

That's the problem, that the skill to disrupt, the skill to be violent, the skill to put kids down is the easiest skill to have. Every child has that. Every child knows how to kick another child. If there is no other skill that you can use, or you feel like you don't have that skill, then the way to show that you have skills or that you can control the situation is by resorting to the least common denominator, which is violence, disruption, etc. So in a situation like that, you have to be looking for things that are happening out of school, things that are bothering this kid, which are not obvious, and make them feel protected at first, safe first so that they can explore the opportunities slowly and get back on track. Sometimes you just can't do it. You are not miracle workers. But that would be the way I would feel.

Q: *If it is a professional goal of the individual guide to achieve flow learning him- or herself, which enables the child to observe flow learning in an adult, what steps should she or he take in order to do this?*

A: That seems to be a very important characteristic of teachers. From what we learned about which teachers students remember best and can say that they learned most from, there are two types of teachers—and often these are overlapping—there are two reasons why teachers are effective generally. One is that the child feels that the teacher took a special notice of him or her, that she felt validated by the teacher's interest and attention. The other is that the teacher enjoys what she or he is doing. Often the second reason is described in things like "The teacher is—well, she's crazy; she's a nut." And then you ask, "What does that mean?" and they say, "Well, she liked mathematics. Who would like mathematics except somebody who is a nut?" Usually you convey the enthusiasm about things that the students would not necessarily think it is worth being enthusiastic about. But when they see an adult who is really getting enthusiastic about something, that means something to the adult, that is a very important message, one that children all too often don't get. Most kids, teenagers have in their rooms icons of entertainers, singers, athletes—these are the people they look up to because they think these people have fun; they enjoy life. Engineers, teachers, doctors don't enjoy life. So why do you want to be one of those people? I think if you can somehow convey the excitement that comes from learning—and, of course, in a sense, I should say that you shouldn't be a teacher unless you do have fun doing it, unless you really

believe that this is worth doing, If you can convey that through whatever means, I think that's a very powerful pedagogical influence. Just enjoy. You don't even have to worry about how that information gets transmitted; if you can transmit the enjoyment, I think that's powerful enough. They will find the information. They will seek out the information on their own. I didn't give you any specific advice, but I confirmed that what you asked is important.

Q: *A lot of Montessori materials have controls of error built into them, so the children get immediate feedback from the materials. We were wondering about how we can give immediate feedback to our older children, who seem to want it more at times, with so many children in the classroom.*

A: Again, it's very hard to give a general recipe because, as you say, some kids seem to need it more. I think everybody at certain periods needs it more than others. I think it's a question of paying attention to the child and realizing that at certain points you may have to give feedback over and above what the material itself can give. I think both are important. You have to realize when it is that the child is insecure enough that you need that personal feedback, too. It's very difficult to give a general recipe. It depends on the kid.

Q: *With children who are experiencing stress or anxiety or interruptions or a prolonged state of apathy, i.e., television, in their home life, how can we get them back into flow in the classroom environment? Also, how do we optimize the parents' experience of flow, both as parents and in their life, and help them to recognize and respect it in their children?*

A: Good question. I wish I had the rest of the day to talk about that topic, because it is one of the things that is most baffling to me: how little flow people usually have at home, not only children—children manage—but how little parents have. More flow at work, usually, for adults, than at home, and yet everybody wants more free time to be at home and they rush home to have a good time and then they're bored because they have no idea of how to create—you should have Montessori materials for parents to keep at home. I think the only thing most people have, at home to work with is the TV. There used to be musical instruments, libraries—those are very rare. There is very little flow experience at home, and I think almost the best education is the one where you can involve the parents and make them aware of how important their contribution is, not only to the child's learning but to their own life. Somehow you have to get them in and get them to realize that education doesn't stop in the school and that it's very essential. I don't know how much you get the parents involved, but I think to the extent you can do that, you are much better off.

Q: *This question is about group flow. If the group were flowing, but there were an individual who interrupted that flow, how do you reconcile those two, or would you make a recommendation about that?*

A: That's really difficult because you find, for instance, there have been very good studies that show that if you get a student to present to the class, standing in front of the class, usually that person is in flow and everybody else is bored. So it becomes a kind of serial flow, but very inefficient. In group work, whenever there is group work in a class, there is not as high a flow for anyone as for the presenter,

but almost everybody else has a chance to be in flow. There is a lot known now about these micro-environments in the classroom and what's the best. I think if you can get people to work alone on their own interesting tasks without integrating with others, then you have separate flows, and that's OK, that works. If you have group projects, where everybody is really involved—[The questioner broke in: "Let's say a small group, of 4, 5, 6, as opposed to a whole class."] Yes, right. That's usually a very good environment. It's the best you can get in school, where everybody is involved. It's better than listening to the teacher; it's better than a single person presenting to the class; it's usually better than each person doing their own because many of the people don't know how to do it on their own. So, given that it's an imperfect world, that's one of the best milieus.

Q: *Can you have flow in a classroom with the students? Can the students have flow when the adult is not in flow?*

A: It's harder, but certainly you can, because if the materials are stimulating enough or the problem is interesting enough, the kid can get into flow even if the teacher is out of it. It's much better, though, if the teacher is involved. We've found that the attention of students is related to the flow of the teacher in almost every subject, but in math it stops being correlated after about third grade, because by fourth grade most students who are not good at math are so out of it that even if the teacher is in flow, they don't pay much attention. Otherwise, it does help.

Q: *We were wondering if you could comment about what's happening in between periods of flow, because in the classroom, sometimes, when they're in between those flow periods might be a time when there's more disruptive or distractive behavior.*

A: It's true that it's very difficult to be in flow all the time. Nobody that I know can be in flow all the time. Usually you need periods of recovering and relaxation and so forth in between. But it's not the case that too much flow creates disruption. I think it's usually too little flow that creates disruption. I wouldn't worry too much about what happens in between. If you generate the conditions of flow, kids may be horse playing for a little bit but it's not the kind of real disruption that comes when you're bored and when you're apathetic for a long time,

Q: *We have work cycles in the morning when a child may choose two or three different activities in succession, hopefully in flow with each one. When they've finished an activity, they usually have a kind of a rest time, and some times they need an adult to kind of help them choose the next thing. What can an adult do to facilitate the next engagement, the next episode of flow?*

A: Again, I hesitate to give general recipes because kids are so different. Some kids, if you try to nudge them into a particular activity, just to show their independence they will do the opposite. Others are more dependent and so if you give them something to do they will be grateful for it. Nothing can shortcut the attention you have to give to kids to figure out what works with them and how they can get motivated. As I said, the moment you get a general recipe, you immediately set up a mechanical system which will produce a reaction on the part of the children because they don't want to be forced or manipulated or pushed. What works is their feeling that you generally understand what they want or what they

need and that you are willing to help them to get it. If they get that impression that you are on their side and you are understanding them, then they will respond. But in order to feel that, you actually have to pay attention to them. You actually have to understand them. If you do, you work one thing one day, something else the other day. But if you have that empathy, that understanding which requires attention, then it will work.

Q: *We had not so much a question as observations to share. Members of our group were struck by the usefulness of this chart* [Fig. 6.1] *from a couple of different angles, one being parent education—that it's new language and a new way to talk about their child, their child's interests and emotional level and development in the classroom, and that it also comes from a field outside of Montessori and is well documented. And as well, it can be a tool to determine the effectiveness or appropriateness of a presentation given. If you step back to observe the response of the child—where on this chart is that child? Have you hit that arousal state? Or is there control? Could the challenge be a little greater? Or are they totally bored and apathetic?*

A: Just to respond to that observation, it's true that in a sense what I've been trying to do for the last 30 years is to develop a way to make legitimate the study of inner experience because that is such a subjective thing that up to now it was very easy to forget it, to say, "OK, well, we know that things happen to people; they have feelings; they have moods; but since we can't deal with it concretely, systematically, let's ignore it; let's do the things we can measure. IQ we can measure; we have a test; we can put people through a test. We can measure all kinds of different things, but feelings, inner states, subjective states—that's not real because it's not measurable." I think the more we can talk up front, concretely about these issues, the more we can actually have the real education, which involves the whole person, not just the intellect but also the feelings and the motives.

Author Biography

Mihaly Csikszentmihalyi is professor of human development and education in the Department of Psychology of the University of Chicago. He is a member of the National Academy of Education and the National Academy of Leisure Sciences. In addition, he has served on the U.S. Child Labor Advisory Committee, the Center for Giftedness of the U.S. Department of Education, the Board of Advisors for Encyclopedia Britannica, and the Advisory Board for the J. P. Getty Museum. Professor Csikszentmihalyi is the author of over 150 scholarly articles as well as 10 books, including *Flow: The Psychology of Optimal Experience, The Evolving Self* (excerpted in The NAMTA Journal, Winter, 1997), and *Being Adolescent* (excerpted in the current Journal issue). *Flow* (Harper and Row 1990) was selected by four book clubs and has been translated into Danish, German, Swedish, Chinese, Portuguese, Japanese, Czech, Polish, and Italian. Professor Csikszentmihalyi presented this talk and the two that follow it at the NAMTA conference entitled *Deepening the Montessori Experience: A Time for Reflection and Creativity*, April 3–6, 1997, in Stevenson, WA.

Chapter 7
Learning, "Flow," and Happiness

Mihaly Csikszentmihalyi

Why do people learn? If we could only answer that modest question, we would be well along the way toward understanding and implementing lifelong learning. If one knew what motivates people to learn, one could facilitate its occurrence and channel it in directions that are socially or ethically desirable. But of course that question is not as simple as it sounds; in fact, no generally useful answer can be given to it at this time. In this paper, I will attempt to deal in depth with some dimensions of the motivation for learning and to relate these to other approaches. Before doing that, however, I will have to set down some of the ground rules for what kind of learning we shall be talking about and what kinds we shall exclude from the analysis.

Learning is an increase in complexity in the information-processing capacity of an organism. It can be consciously pursued, or it can involve changes that happen accidentally as a result of the organism's interacting with his or her environment or reflecting on previous experience in an unintended way. In the first case we have deliberate, voluntary, intentional learning; in the second, spontaneous, incidental, unplanned learning. Although many learning theorists would claim that much of the change an organism goes through is due to incidental learning, we shall consider here only the deliberate kind.

Deliberate learning can be either intrinsically or extrinsically motivated. When a person chooses to learn and feels responsible for his or her choice, the motivation is intrinsic. This stance corresponds, it seems to me, to what Warren Ziegler calls the "praxiological proposition." On the other hand, learning can in fact be extrinsically motivated. For most people, the thirteen-plus years spent in formal educational institutions involve learning that is experienced as forced rather than chosen, and over which one does not feel responsibility or ownership. Among adults the proportions might well be reversed, but even in the second half of life much learning is

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forced on us by changing conditions. The dangers of extrinsic motivation in learning have been amply documented.[1] To educate people under compulsion is costly in terms of social resources because it requires an expensive system of rewards and deterrents to be viable; and it is destructive of the individual's agentic powers, thereby increasing anomie and alienation. For these reasons, we shall here be concerned primarily with intrinsically motivated learning.

Learning that is intrinsically motivated can be either autotelic or exotelic Autotelic learning is pursued for its own sake. In it the experience of active change involved in learning becomes its own reward. The goal is contained within the learning process. Exotelic learning is directed to an outside goal: the outcome is prized rather than the process itself. In practice, the distinction between these two modes of acting is not always clear. A person might first decide to learn to play the piano for exotelic reasons—for instance, because he or she would like to be a good pianist. Playing itself is a chore, a painful discipline. With time, however, the goal of becoming a good pianist may recede as the primary motivational factor because the experience of playing is so rewarding that it can sustain the process by itself, at which point the motivation becomes essentially autotelic.

I will try to develop a model of learning that is *intentional, intrinsically motivated,* and *autotelic*. I will argue that these three criteria define a psychological state that contains a powerful force, for good or for ill. In such a state persons will expend great energies without the need of external rewards. When this force is directed to ethical ends, the social system is strengthened; if it is wasted or harnessed to destructive purposes, it becomes a great danger.

I will further argue that any intentional, intrinsically motivated, and autotelic activity must lead to learning, that is, to changes in the complexity of the organism. Moreover, I shall propose that this kind of learning is the avenue for personal growth that approximates most closely the state of happiness.

Happiness as Personal Development

From earliest times, a majority of people have identified happiness as the ultimate goal of life. There has been no problem in agreeing that happiness is a subjective feeling, but beyond this point sharp differences arise in terms of the origins of this state and in terms of strategies for reaching it.

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[1] P. Goodman, *Compulsory Mis-education* (New York: Horizon, 1964); U. Bronfenbrenner, *Two Worlds of Childhood* (New York: Pocket Books, 1973); R. DeCharms, *Enhancing Motivation: Change in the Classroom* (New York: Irvington, 1976); E. L. Deci, *Intrinsic Motivation* (New York: Plenum, 1975); M. Csikszentmihalyi, "Intrinsic Rewards and Emergent Motivation," in M. R. Lepper and D. Greene (eds.), *The Hidden Costs of* Reward (New York: Erlbaum, 1978): 205–216; M. Csikszentmihalyi and R. Larson, "Intrinsic Rewards in School Crime," *Crime and Delinquency,* 1978, 24(3): 322–335; and M. Csikszentmihalyi and P. L. Mayers, "Intrinsic Motivation and Learning in High School," manuscript submitted for publication, 1979.

The great variety of attempts to pursue happiness can be reduced to one of two complementary approaches: to maximize pleasure or to minimize pain. The first is the hedonist approach, manifested in our days by that component of the American Dream that stresses material success, comfort, pleasure, and ever increasing consumption. The second solution is typified by the Epicurean stance of *ataraxia,* or serene acceptance of the inevitable, and the stoic notion of right living in harmony with the natural forces in the environment. While less popular at this time, the course of reaching happiness through minimizing pain is still an option chosen more or less self-consciously by a number of people in our culture. It seems clear, for instance, that current concepts of mental health, coping, and adaptation are continuous with stoic prescriptions of how to reach happiness.

What is common to both these approaches is that they are essentially homeostatic. The seeking for constantly new sources of pleasure in the hedonistic stance can barely disguise the fact that the experience of pleasure is limited by the inherited capacities of the organism. Thus, the pursuit of pleasure, no matter what novel forms it takes, always seems to lead back to the same cycles of arousal and release. The pleasures of food, sex, rest, and intoxication may produce positive subjective states, but they do not lead the organism to change. Avoidance of pain as a basic stance is also inherently a homeostatic goal, though less so than the pursuit of pleasure. The various disciplines required to curb one's drives and to cope with external changes—from yoga to psychotherapy, from *ataraxia* to Calvinist asceticism, from Tantric rituals to monastic practices—tend to change the organism, to refine conative skills, and thus lead to personality growth. Yet the ultimate goal of such procedures is still homeostatic in that they aim at maintaining the person at a level of quiescence or integrity, protected from the buffeting of fate.

The American Dream, that vague if powerful collective expression of hope that has been the most attractive asset of this society in the eyes of the rest of the world, includes goals that go beyond the homeostatic processes of pleasure seeking and pain avoidance. More clearly and consistently than in perhaps any other society, people in ours have claimed that it is possible for men and women to fulfill their potential by growing in skills, in knowledge, in wisdom. Not for any specific adaptive reason, not as a response to environmental pressure, but simply for the sake of actualizing latent possibilities.

Historically, policies created to implement personal growth have been channeled into educational institutions. It made sense to expect that the unfolding of personal potential would be best achieved within schools. Thus, it is through schooling that we have attempted to escape from homeostatic circularity into an ever spiraling growth pattern. Unfortunately, the school systems inherited from previous ages were not designed for such a purpose. The structure of schools, their curricula, their connections to the rest of societal institutions are encrusted with a variety of status-maintaining functions. Thus, all too often schools limit themselves to sorting young people into the social roles they are expected to assume; only rarely are they able to stimulate patterns of lifelong growth. It is not surprising that formal education has now lost some of its credibility as the main vehicle for personal growth and fulfillment.

Despite this setback, it is worth considering how education is related to happiness. Perhaps if we succeed in clarifying the connections between learning, growth, and happiness, it will become easier to understand what went wrong with education and what could be done to set it right.

The thesis of the present argument will be that the state of happiness is best described by the developmental rather than the homeostatic models. Pleasure and absence of pain are rewarding conditions, indispensable to maintain psychic processes on an even keel. But happiness also depends on something else: the feeling that one is growing, improving, changing to approximate a barely intuited ideal state. That process is by definition a process of learning broadly defined. One might conclude that learning is necessary for happiness, that learning *is* the pursuit of happiness.

The rest of this essay will elaborate on this theme. In order to develop the argument with some conceptual rigor, it will be necessary first to outline a model of the self and its dynamics. It is on this model that the later analyses of growth and learning will be based.

A Systemic Model of the Person

Happiness is a state experienced by persons. Experiences are changes in the state of the self. The self is an information-processing system. Through the allocation of *attention,* which represents psychic energy and is in limited supply, the self can produce and then process information about its outer environment and its inner states.[2] For example, if I say, "I feel feverish," I am relating the fact that I am aware of certain changes in my physical state that suggest the presence of illness. The "fever" as an experience is not diffused in the body but describes a certain state of my consciousness, or self. If I think, "I am bored," this again refers to a state of my information-processing system. In this case consciousness reflects on its own state and produces the information "I am bored."

All of this sifting and relating of information is accomplished through allocation of attention. Since attention cannot be split indefinitely, the amount of information that can have an effect on the self is limited by the availability of attention. Hence, the amount of attention available determines the kind of experiences one can have and therefore the content of one's life over time. It is impossible to "experience" a symphony and a poem at the same time, or to balance a checkbook and process a philosophical argument concurrently. It is difficult to feel happy and sad at once, and the intensity of one experience will be at the expense of the other. How one allocates one's attention will determine the content and quality of one's life.

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[2] M. Csikszentmihalyi, "Attention and the Holistic Approach to Behavior," in K. S. Pope and J. L. Singer (eds.), *The Stream of Consciousness* (New York: Plenum, 1978): 335–358.

For practical purposes it is convenient to differentiate two ideally contrasting states of the self. The first might be called psychic entropy. This obtains when the information-processing system, or self, is in a state of disorder. In this state attention is withdrawn from the outside world to reconcile conflicting information in consciousness. Conflict is the result of a mismatch between information being processed and goals or intentions developed by the self. The ensuing subjective experiences are anxiety, self-pity, jealousy, boredom, and so forth. They are all characterized by self-consciousness, that is, the *involuntary* turning inward of attention to restore order in the self. Thus, psychic entropy is a state of disorder in the self system that results in decreased efficiency of that system, inasmuch as less attention is left over to relate to new information.

The opposite state might be called psychic negentropy. This is a condition in which the information processed in consciousness does not conflict with other information available to the self. The self system is in harmony, and no attention needs to be allocated to its internal functioning. If attention is turned inward, it is done so voluntarily to reflect or to plan, not to negotiate inner conflict. The subjective experiences of psychic negentropy are what we call fun, involvement, enjoyment, serenity; and they are characterized by lack of involuntary self-consciousness.

Psychic disorder is not necessarily "bad," nor its opposite "good." There is no way to avoid information that conflicts with expectations held by the self, and the self develops by integrating new material into itself, part of which is bound to produce conflict. Entropic self-consciousness is often the necessary precondition for artistic accomplishment and creativity in general. At the same time, a person who devoted most of his or her psychic energy to introspection would not have enough attention left to relate adaptively to the environment. Moreover, while psychic entropy is subjectively experienced as a negative state, negentropy is exhilarating. The former might be justified as a means to achieving the latter, but psychic order is in itself the goal.

Entropy and negentropy do not apply only to states of the self. They can be seen as attributes of the information exchanged *between* people as well; thus, they characterize states of social systems. For instance, a classroom as a social system is in a state of entropy when the information provided by the teacher does not match the students' expectations, or vice versa. In such a case the teacher's actions will produce information that creates conflict in the students. Instead of paying attention to the lecture or the assignment, the students are conscious of boredom, worry, or anger, or else they withdraw into fantasy. Negentropy of a classroom system would consist of all of the students and the teacher processing the same information without being distracted by extraneous thoughts and feelings. Order and disorder are useful concepts to describe the states of individual selves as well as the states of social systems, ranging from two-person dyads to entire nations.

The Conditions of Psychic Negentropy

How does it feel to be in the state of psychic negentropy? And what are the conditions that help produce it? Psychologists, whose province it would be to answer such questions, have seldom attempted to do so. In general they have instead devoted their efforts to exploring the various manifestations of psychic disorder. Among modern scholars, some exceptions are Maslow's description of "peak experiences," Laski's collection of reports of ecstasy, and Bradburn's survey studies of happiness.[3]

In a series of studies started ten years ago, we conducted interviews with several hundred people who were intensely involved in enjoyable activities: artists, athletes, chess players, dancers, rock climbers, and so forth. We expected that such an elite group would constitute the extreme tail of the normally distributed population in terms of familiarity with psychic negentropy. From their accounts we hoped to be able to reconstruct the essence of the experience. These studies were later replicated with more "normal" samples: professionals, high school students, engineers, secretaries, assembly-line workers, and groups of elderly people.[4]

The descriptions obtained from these studies agree to a remarkable extent about what the experience of enjoyment is like and about the conditions that facilitate its occurrence. For the sake of brevity we shall refer to the negentropic experience as "flow," which was a term often used by our early respondents to describe their feelings while involved in an enjoyable activity.

The flow experience is one of deep concentration on a limited set of stimuli that are accepted by the person as being relevant. These stimuli might be the opponent's serve for a tennis player, a set of musical notes for a composer, or the patient's anatomy for a surgeon. Concentration precludes the person from thinking about, or even noticing, those stimuli that are temporarily "irrelevant" to the task. Thus, a chess player in a tournament is typically unaware for hours that he or she might have a splitting headache or a full bladder; only when the game is over does awareness of one's physical condition return. Such art intense concentration is sustained in part by the activity's having clear goals and providing clear feedback to the person's actions. The climber suspended on a rock wall knows what he has to do and is constantly aware of whether his moves do or do not help him achieve

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[3] A. Maslow, *Towards a Psychology of Being* (Princeton: Van Nostrand, 1962); A. Maslow, *The Farther Reaches of Human Behavior* (New York: Viking, 1971); M. Laski, *Ecstasy: A Study of Some Secular and Religious Experiences* (Bloomington: Indiana University Press, 1962); and N. M. Bradburn, *The Structure of Psychological Well-being* (Chicago: Aldine, 1969).

[4] M. Csikszentmihalyi, *Beyond Boredom and Anxiety (San* Francisco: Jossey-Bass, 1975); P. Mayers, "Flow in Adolescence and Its Relation to School Experience," unpublished doctoral dissertation, University of Chicago, 1978; P. Mayers. M. Csikszentmihalyi, and R. Larson, "The Daily Experience of High School Students," paper presented at the meetings of the American Educational Research Association, Toronto, 1978; and H. R. Gray, "Enjoyment Dimensions of Favorite Leisure Activities of Middle-and Old-aged Adults Based on the Flow Theory of Enjoyment," unpublished doctoral thesis, Pennsylvania State University, 1977.

that goal. Composers have a set of sounds "in their minds" that they wish to reproduce on paper, and each note they write down approximates more or less closely the effect they wish to achieve.

Concentration on a manageable and clearly structured stimulus field leads to a total immersion in the activity, with no attention left over to think about one's self as separate from the interaction. Thus, people report a loss of awareness of time passing, a loss of self-consciousness, of self-doubt, of any of the ego-related concerns that one experiences in everyday situations where goals, feedback, and concentration are more loosely or contradictorily structured. And finally, the flow experience is unanimously described as being exciting, fulfilling, enjoyable—an experience that is rewarding, a goal in itself rather than a means to some external reward.

These findings suggest that in the flow experience we might have a model for that optimal state of being on which a theory of happiness could be built. Flow differs from the homeostatic approaches to happiness because it consists neither in seeking to satisfy a limited and closed set of needs for pleasurable stimulation nor in attempting to avoid unpleasant sensations. Studies of the flow experience show that people obtain positive negentropic states by seeking out new stimuli that might be threatening, like dangerous mountains or the depths of the sea. Enjoyment does not derive from the satisfaction of instinctual needs but from the achievement of *emergent* goals, that is, from one's ability to respond to opportunities in the environment that one learns about, or actually *discovers,* in the course of one's life.[5]

But what are the conditions that make the experience of flow possible? As one might expect, psychic negentropy typically occurs in activities that are ordinarily classified as play or leisure. Yet the important finding from our studies is that any activity can produce flow. It is not the objective, culturally sanctioned nature of the activity that determines whether the experience will be entropic or negentropic; what counts are more subtle parameters in the structure of the activity. A game of tennis does not necessarily induce flow in the player, nor is working at the assembly line necessarily a sign that the worker's consciousness is in a state of psychic entropy.

What, then, are the structural parameters in a situation that mark the presence of flow? In the first place, it is necessary that there be *something to do,* that the person be faced with opportunities for action, or challenges. Next, it is necessary for the person to have appropriate skills, or the capacity to respond to the challenges at hand. When the skills and challenges balance each other, the situation usually produces flow. If the challenges are too high relative to the skills, entropy ensues in the guise of worry or anxiety. If the skills overwhelm challenges, self-consciousness appears in the form of boredom (see Fig. 7.1).

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[5] M. Csikszentmihalyi, "Intrinsic Rewards and Emergent Motivation," in M. R. Lepper and D. Greene (eds.), *The Hidden Costs of Reward* (New York: Erlbaum, 1978): 205–216; and M. Csikszentmihalyi, "Love and the Dynamics of Personal Growth," in K. S. Pope (ed.), *On Love and Loving* (San Francisco: Jossey-Bass, 1980).

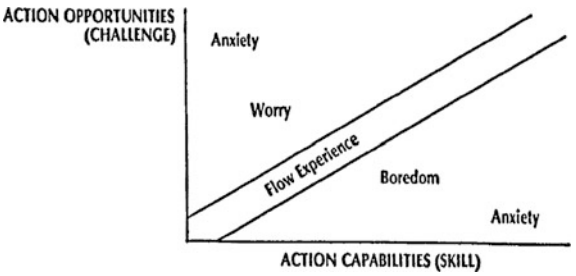

Fig. 7.1 A model of the flow experience

In addition to the balance between skills and challenges, a flow activity (that is, an activity that tends to elicit the flow experience in people who practice it) usually has clear rules and clear goals and provides clear feedback. The stimuli relevant to the activity are clearly identified to facilitate concentration. As a result, a flow activity is able to provide a self-contained little world in which a person can act with total involvement and without self-doubts. The most obvious example of a flow activity is an athletic context, such as a football game. Here the relevant space is limited by the gridiron, the relevant time is indicated by the game clock, the uniforms separate the actors from the audience and the team from its opponents. Rules, goals, and challenges are clear. After each play the results of one's actions are measured in terms of yards gained or lost. In this well-structured little world, one can act with total involvement for a little while and experience flow.

But what is important to realize is that one doesn't have to play to experience flow. Every activity can be enjoyable because every activity has the potential of being structured like a game. There is no inherent reason for work to be painful, nor for learning to be dull.

To understand the experience of psychic negentropy, it is essential to keep in mind that the conditions that produce it are both objective and subjective. For instance, the amount of challenge present in a situation will depend on what is actually there and on what the person perceives to be there. To most people, a vertical slab of rock does not present opportunities for action; it is something to be glanced at and immediately forgotten. To a rock climber, it might constitute an exquisite sequence of challenges to be savored for hours or days. The same is true of skills. While some people consistently overestimate their own abilities, others think they can do less than they are "objectively" able to do. Thus, the ratio of challenges to skills cannot be accurately predicted by knowing only the external parameters of a situation.

That point has some very important practical consequences. It implies that to make a person happy in a given situation, it is not enough to change the external conditions; the person's perception of the situation must be changed as well. People need to be able to restructure their interaction with the environment to bring their skills in line with the challenges. It is possible, for instance, to enjoy even the most objectively "boring" situation by developing enough cognitive challenges and skills. That is what the discipline of yoga and other meditational

techniques teaches. Similarly, musicians, poets, and mathematicians are able to transform even concentration camps into tolerable experiences because they can interact with a symbolic world of challenges and skills they have internalized. The best policy for increasing negentropy in everyday life, however, would consist in a two-pronged approach that aims to restructure both the objective and the subjective structure of activities. It is necessary to transform the typical tasks of life into flow activities and, at the same time, to teach people how to reach flow even when what they have to do is not inherently conducive to the experience.

Perhaps by now the relationship between happiness—or the state of psychic negentropy we have called "flow"—and what Warren Ziegler is calling the "learning stance" has started to emerge. The connection will become clearer in the following sections, but at this point it might be convenient to state its development thus far. For a person to experience flow, he or she must be able to recognize opportunities for action in the environment and must have the skills to deal with them. It is clear that some people are born with or acquire skills in a specific area and thus have a privileged entry into one type of flow activity; for example, physical build, a good singing voice, a special talent or early training may set a person up for competence in a certain activity. But in addition to such specialized skills, there is a more important, more general skill available to everyone. That is the ability to transform any situation into a flow activity, the capacity to restructure one's environment to achieve a balance between challenges and skills. A person with this meta-skill sees opportunities where others don't or learns new ways to cope with challenges if they threaten to be overwhelming.

This basic meta-skill seems to be a good description of the "learning stance." It is also very similar to what I understand Kenneth Benne to mean by his "methodological character," or one's tendency to seek out new learning through conflict and doubt. How it relates to psychic negentropy, and how it can be affected by training and policy decisions, will be explored later. At this point it should be emphasized that the flow model suggests that such a learning stance is not just a means to an adaptive end. The importance of this basic kind of learning does not lie only in the fact that it can provide skills necessary to cope with this or that problem of existence. The learning stance is a necessary skill by itself, regardless of its outcomes, because it offers the closest approximation of happiness that human existence can provide.

The Dynamics of Personal Growth

I do not intend to imply that people are happy only when they are learning to cope with new challenges or when they are deeply involved in a demanding flow activity. As the model in Fig. 7.1 suggests, flow experiences occur also at the lowest levels of challenges and skills, provided these are in balance. In fact, the results of our ongoing research suggest that day in, day out, the most enjoyable times in people's lives consist of rather trivial, low-key experiences. About one-

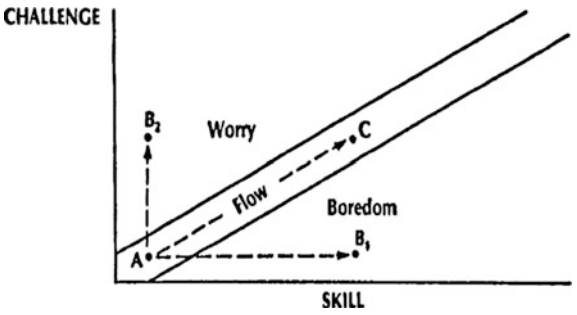

Fig. 7.2 Dynamics of flow: a hypothetical transition from a low skill, low challenge state (*A*) to three possible alternative states

third of the reports concern pleasant occasions of sociability: talking around the dinner table, admiring a friend's new car, sharing gossip around the office water cooler. Another third of the time, people explain why they feel exceptionally good in terms of being rested, well fed, relaxed, or in tune with the weather. Finally, a third of the time the good feelings come from something the person is doing, from the activity itself. On the whole, we are now estimating that about 15 % of the best everyday experiences occur in the context of learning, which includes such things as trying out a new recipe or a new hairdo, as well as more conventional tasks such as learning a new language or improving one's tennis game. On the other hand, people report that of the worst daily experiences, fewer than 3 % involve new learning. More than a third of the worst experiences are due to boredom experienced in routine, repetitive activities.

If it is true that people in general are happiest when they are relaxed in an undemanding situation, what is the justification for suggesting that the flow model is crucial for understanding happiness? The reason is that the prevalence of happy experiences that are extremely low in challenges and skills should not obscure the fact that restful occasions are enjoyed because they contrast with the more challenging encounters of daily life. Without the latter, the times of relaxation begin to pall. The charged experience of deep involvement is enjoyable in its own right, and it gives value to the low-key occasions in which neither challenges nor skills are high.

But the most important feature of the flow model in the present context is its implication for understanding the growth of the self. An example might serve to illustrate the dynamics involved. Let us imagine a beginning chess player, who plays against other beginners. In terms of the flow model, one would predict that he enjoys playing the game because challenges and skills are matched, His situation is represented by position A in Fig. 7.2. As time passes, and our imaginary player keeps playing, one of three possible outcomes is likely to occur. One is that both the player and his opponents learn new skills as a result of practicing the game. If this is what happens, then the player will move to position C in Fig. 7.2: he will still be in flow when he plays. A second possibility is that the player improves, but his opponents do not. In this case, our player will find himself at B, and will tend to get bored when playing. If he gets bored, he will either stop

playing chess or find himself some more skillful opponents, thus moving back up into flow at position C. A third alternative is that our player's opponents improve much faster than he does; in this case he will soon find himself in position B_2. At this point the player does not enjoy the game because he knows he will keep losing, and the experience becomes frustrating. He has the option of quitting the game or of returning into flow, either by finding opponents with fewer skills (i.e., back to position A) or by improving his own skills until they match the opponents' (up to position C).

In other words, positions at the lower end of the flow diagonal are inherently unstable. People must progress upward along the diagonal if they wish to keep enjoying whatever they are doing. If they do not move, boredom or worry is likely to ensue. Incidentally, the same argument explains why some activities are more conducive to flow in the long run than others. A game of tick-tack-toe, for instance, soon becomes boring because it cannot offer new opportunities for action. Chess, on the other hand, provides an almost unlimited range of increasing challenges.

But what does a move up the flow diagonal imply? What is the difference between positions A and C in Fig. 7.2? It is not necessarily true that the quality of the experience changes as one matches higher challenges with greater skills. Playing with a puppy can be as involving a negentropic state as playing a Beethoven violin solo is. The difference between A and C on the diagonal is that C is a more *complex* experience. It means that the opportunities for action are more difficult to meet and that the abilities being used are more refined. Higher up the diagonal, behavior is more complex because more differentiated responses are required to meet the demands of the situation. Therefore, the experience might be described as being more "deep," since presumably more cognitive and affective skills are involved and the attention is more concentrated. It follows that a person who stays in flow in several different activities will necessarily become a more complex person because the dynamics of the flow process must become more complex as a condition for continued enjoyment. This increased complexity of the self is what one means by personal growth. Thus, to be happy one must grow.

It is now possible to see more clearly the role connection between learning and happiness. Happiness requires that one be able to find increasingly complex opportunities for action and that one be able to improve one's appropriate skills. That ability, which seems to come naturally to children, apparently often atrophies by early adulthood. Some people, exposed to a constricting environment, never realize their inner resources or the presence of surrounding opportunities. Others are overwhelmed by demands in their milieu early on, and they find that the only way they can cope with the entropic forces is to restrict their perception of opportunities. For them, the French definition of human development applies: first an age of illusion, followed by an age of disillusion, ended by an age of indifference. The only way to break this vicious cycle is to maintain one's ability to grow, to find ways of getting deeply involved with the world around. That is the ability that we are calling the learning stance.

Our research with representative blue- and white-collar workers in the Chicago area suggests that people differ greatly as to how often they report experiencing deep flow. About 10 % claimed never to have felt anything like it; the rest were rather evenly distributed along a continuum ranging from once a year to several times a day. Of course, it is difficult to know whether such interview reports are accurate reflections of the experience. Convergent validation, however, suggests that what people say in this respect might be true. The more often people report flowlike experiences, for instance, the more satisfied they are with every aspect of their lives and the more involved they are with their work.[6] In our sample, adult workers report that about 40 % of their deep flow experiences take place while they are working on their jobs, and the rest occur about evenly in situations of sociability, in hobbies and sports, in passive leisure activities like reading or listening to music These preliminary findings confirm three important predictions derived from the model: (a) flow can be experienced in a variety of situations, including work; (b) people differ greatly in terms of where and how often they experience flow; and (c) those who experience flow more often, regardless of context, are more involved and more satisfied with their lives.

Some Principles for Development of the Learning Stance

These considerations lead us back to policy issues. While it is clear that research in this field is still in its infancy, and much more data need to be collected before we can be sure of our facts, one might hazard some suggestions about what can or cannot be done to increase happiness by affecting the learning stance.

In the first place, the argument thus far provides a different philosophical justification from the ones that usually underlie policies in adult education. The point is that opportunities for learning in later life should be made available not only in response to specific needs such as occupational retraining, certification, the improvement of health, and cultural enrichment. These are important reasons, but an even more central one is that learning opportunities are necessary for negentropic personal growth. Learning is essential not only because of what one can do with the knowledge, but also because of how one feels while one is learning and the kind of person one becomes as a result of the experience.

It follows that the content of learning must be seen as much broader than the usual utilitarian subject matter of adult education. The question should be, What kind of opportunities are most conducive to the development of personal potentialities? We need to know more about the sort of activities that adults find intrinsically rewarding and growth producing, The most obvious policy direction

[6] M. Csikszentmihalyi and R. Graef, "Flow and the Quality of Daily Experience," manuscript submitted for publication, 1979.

would then be to make such activities available to larger segments of the population.

To a certain extent, we already know that people spontaneously take on a variety of learning opportunities in their lives. Allen Tough has shown that average adults spend almost 10 h each week engaged in learning efforts. That is an impressive investment of psychic energy, but know a bit more about the quality of these learning experiences. How complex are they? How much growth do they provide? How integrated is the change produced with the rest of people's lives? My impression is that answers to these questions would spell out a less optimistic picture than the numbers alone suggest. Our data—which were not collected specifically to find out about learning and are therefore far from conclusive on this score—suggest that although most adult learning efforts are intrinsically motivated, they are usually exogenous. In other words, they are means to specific, and usually short-term, ends. While this type of learning is invaluable for coping with the day-to-day problems of existence, it is essentially a homeostatic response that may not lead to growth and complexity.

An enlightened policy would not restrict itself to enabling people to learn skills that are easiest to acquire. The flow model suggests that a person will engage spontaneously in activities that are enjoyable and that initially these will be activities of low complexity, unless the person's capacities are already developed. The temptation is to satisfy immediate needs for involvement by providing activities that not only require few skills to begin with, but that also never make substantial demands on the person's abilities; therefore, they are structurally incapable of nurturing growth. We should remember that in Latin *education* meant "to lead out" and that educational policy should aim to assist people to move upward along the diagonal of complexity. Fashionable but trivial learning opportunities are in the long run literally self-defeating; they keep people busy for a little while, but they fail to start them on a pattern of growth.

Perhaps the main priority for lifelong learning at this point is the development of symbolic skills. Strictly speaking, of course, all learning involves symbols, even learning how to bake bread or how to fix the plumbing, but here I mean learning to operate within a symbolic subworld like mathematics, music, chess, poetry, or art, which provides greater opportunities for growth. How does mastery in such a subworld contribute to happiness? The advantage of symbolic action systems (like poetry, for instance) is that they offer an almost unlimited range of opportunities in which negentropic states can be experienced. Symbolic systems have two main limitations. First, they require a certain level of skill to enjoy in the first place and thus need a large initial investment of psychic energy, second, compared with achievements based on power of money, symbolic skills are generally seen as useless and hence not worth bothering with. This problem can be resolved, at least in principle, since whether people perceive an activity to be useful depends to a great extent on the amount of attention others devote to the activity, hence, a policy directed to enhance happiness through learning might be able to support symbolic accomplishment by devoting increasing attention to it and so generating enough attention to make the activity self-sustaining. An excellent example in this

direction is the work of the poet Kenneth Koch. He has trained ghetto children and a group of semi-illiterate older persons to express their most intimate feelings in poetry.[7] Having learned the tools of poetic expression, these essentially alienated people were able to make order in their experiences through symbolic means—psychic order. The temporary flow became a way to a more permanent one. Such methods are a national resource to be studied and applied by anyone concerned with lifelong learning.

The importance of symbolic systems goes beyond the fact that they can provide a way of ordering people's experiences and thereby create states of psychic negentropy and growth. They also have implications for the future of our society. As long as our values are exclusively material and utilitarian, people's energies will be devoted to secure increasingly expensive material goals: bigger homes, more energy-intensive appliances, more powerful means of transportation. It is clear by now that this course can lead to only two alternatives: either we destroy our planet by seeking happiness in material objects, or we shall have to scale down our appetite, in which case intense frustration and demoralization can be expected.[8] Education in symbolic skills might be one way out of this ruinous course. To the extent that a person becomes able to act in subworlds that operate on different principles from the everyday environment, subworlds that run on information rather than oil, to that extent he or she might become less dependent on the material world and more able to find satisfaction in symbolic rather than material rewards. One should add, of course, that "material" rewards are also symbolic; the problem is that focusing people's energies exclusively on this one set of opportunities has upset the ecology almost beyond repair. Attempts to improve the learning stance should therefore not disregard ephemeral symbolic skills in favor of simpler, more concrete training. In fact, creative efforts to reconstitute legitimate alternative realities in the present barren materialistic landscape might be the most important contribution a policy in this field can make.

Having pointed out some general principles pertaining to the *content* of what should be included in the learning stance, the question arises: How should this content be transmitted? Clearly "formal education" can be only a small part of the answer. Classroom instruction works only for students who are already motivated to learn in a classroom setting. To affect the learning stance, one must recalibrate people's motivation to become involved with learning in the first place. The ability to restructure situations to make the interaction with them enjoyable, and hence

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[7] K. Koch, *Wishes, Lies and Dreams: Teaching Children to Write Poetry* (New York: Chelsea House, 1970); and K. Koch, *I Never Told Anybody: Teaching Poetry Writing in a Nursing Home* (New York: Random House, 1977).

[8] M. Csikszentmihalyi, "The Release of Symbolic Energy," paper presented at the American Art Therapy Association meetings, Baltimore, 1976; M. Csikszentmihalyi, "Attention and the Holistic Approach to Behavior," in K. S. Pope and J. L. Singer (eds.), *The Stream of Consciousness* (New York: Plenum, 1978): 335–358; and M. Csikszentmihalyi and E. Rochberg-Halton, "People and Things: Reflections on Materialism," *The University of Chicago Magazine,* 1978, 70(3): 6–15.

growth producing, is presumably a meta-skill one develops fairly early on. We need to know more about when and how it is acquired because it is likely that the most efficient way to enhance lifelong education is by maintaining more and more children on the growth path, At present we know a great deal about how children learn to read and to count. But we know next to nothing about how children learn to enjoy learning and about how to foster this skill. Yet that is what we need to know if we wish to enhance what Brewster Smith[9] called the "benign spiral" of self-development, or what we are calling the learning stance.

At present, the structure of a young person's environment is not the most conducive for the development of a learning stance. Community resources for intrinsically motivated learning are sorely inadequate and research with adolescents, we found that while youngsters enjoyed watching TV less than anything else in their daily lives, and enjoyed sports and games most, they still spent almost four times as much time in the former activity than in the latter.[10] Television mimics activity and purports to convey information, but those who watch it do not act and therefore cannot get feedback and learn about themselves. Sports and games require a greater output of psychic energy to get started in; but once that initial expenditure is made, they become autotelic, and one grows by practicing the necessary skills.

What about schools then? Surely they are the institutions expressly designed to instill the learning stance, and young people spend a large proportion of their time in them. The problem with classroom instruction is that the material presented by the teacher (which constitutes the "challenge" for the students) is by necessity aimed at an average level of complexity in relation to the individual skills of the students in the class. For many students the material is too easy, and they will be bored; for others it is too difficult, and these students will be anxious. Although it is true that some classes are seen by some students as enjoyable as flow activities, and even though enjoyment of a class is a better predictor of a student's semester grade than scholastic achievement scores or grade point average,[11] in general school is experienced as boring or threatening most of the time, and making it more enjoyable is not one of the priorities of educators. It is typical, for instance, for an inner-city school in budgetary difficulties to curtail its art, music, or physical education program. Yet these are the activities that children in general enjoy most, and for many children with low academic skills they provide opportunities for growth otherwise unavailable. If we also consider that art, music, and sports are

[9] B. Smith, "Competence and Socialization," in J. A. Clausen (ed.), *Socialization and Society* (Boston: Little, Brown, 1968).

[10] M. Csikszentmihalyi, R. Larson, and S. Prescott, "The Ecology of Adolescent Activity and Experience," *Journal of Youth and Adolescence,* 1977, 6(3): 281–294; and P. Mayers, M. Csikszentmihalyi, and R. Larson, "The Daily Experience of High School Students," paper presented at the meetings of the American Educational Research Association, Toronto, 1978.

[11] P. Mayers, "Flow in Adolescence and Its Relation to School Experience," unpublished doctoral dissertation, University of Chicago, 1978.

some of those symbolic systems our culture needs to develop in order to survive, the shortsightedness of such policies becomes even more obvious.

What young people need in order to acquire a lifelong learning stance are opportunities for action and respected adult models from whom they can learn. Socialization into the learning stance requires that young people be exposed to adults who are doing complex things and *who enjoy themselves.* A teenager will not be wholeheartedly motivated to be an engineer as long as he sees engineering as something unreachable or boring. Our interviews with adolescents reveal that the greatest positive impacts in their lives were made by adults who cared for them, who did difficult things at the level the youngster could understand, and who seemed to enjoy the interaction. In addition to parents, these were athletic coaches, summer camp counselors, work supervisors, and teachers.

It is unfortunate, however, that the most widely available cultural role models for young people are figures from the entertainment world. Posters of rock stars, fashion models, and movie actors decorate the walls of their bedrooms, shrines where youths invest their psychic energy. These cultural heroes are merchandised by the media as examples of psychic negentropy: people who have no problems, who have fun, who can satisfy every one of their whims.

These few observations have indicated some of the principles for establishing a viable learning stance in young people. But what can be done to maintain it in adults? The principles remain the same throughout life: opportunity and example are still the major factors. Given the social roles of adults, however, some specific points should be raised.

Most adults spend about half of their waking hours at work and spend additional time working in their homes. For the vast majority of people, the jobs they do were not designed to foster the learning stance or to provide enjoyment. Since the Industrial Revolution, almost every occupation has been affected by Taylorean criteria of efficiency, which boil down to the question: How should a person act to produce more in a shorter time? From a purely materialistic rationality, this question is a sensible, even elegant one. Like an athletic event, it sets down simple rules for a race in which new records can be attained again and again. But as the only principle for organizing human effort, the productivity criterion not only stifles growth by channeling it into too narrow a course; it becomes actually self-defeating in its own terms because people eventually refuse to let their actions be dictated entirely by requirements set up by production engineers.

Of the worst experiences that our sample of workers reported in an average week, the largest single category—28 %—was due to aggravation with a routine, boring job. That was twice the frequency with which they complained about physical inconveniences like being tired or feeling ill. These workers each wore an electronic pager for a week, and they were randomly "beeped" during the day; whenever the pager beeped they filled out a brief report on where they were, what they were doing, and what they were thinking about. In addition, they rated their experience at the time along two dozen dimensions. We learned, for instance, that when these workers are on the job they actually work only about 60 % of the time; the rest they talk, daydream, or do other things unrelated to their task. As one

would expect, the less they enjoy their job, and the *fewer flow experiences they report outside their job,* the less time they spend working at their task.[12] It seems that even in terms of productivity one should consider enjoyment as one of the main factors in designing jobs.

Satisfaction with one's job is best predicted by the amount of *variety* and *challenges* one finds in the task. These variables correlated with overall work satisfaction many times higher than the amount of salary the worker is paid.[13] These trends clearly suggest that the opportunities to learn and to grow are as essential to the person who is working as they are in life generally. Yet very rarely are these requirements built into the way jobs are structured.

If one were to ask, "Why is productivity so important?" the answer would be some variation of "Because material products will make our lives more happy." It then makes little sense to give up our present happiness in exchange for a hypothetical future one. "Deferral of gratification" is a valuable skill to have, but when it becomes a way of life built into the social structure, it ceases to make sense.

Some researchers have claimed that it doesn't matter whether workers enjoy their jobs or not provided they can dispose of their free time at will. But when at least half of one's waking time is spent doing routine things on the job, and then another quarter or more has to be employed in routine maintenance tasks like dressing, driving, shopping, and cooking, it is difficult to use the remaining energies for starting a complex activity. It is much easier to watch TV or go bowling or drinking. Here the challenges are few, but one is comfortable with the skills one has. These activities rarely get more complex, but there is enough day-to-day variation in the stimuli experienced to give the illusion of change, if not of growth.

Given this situation, it is difficult to see how the learning stance of adults can be significantly improved without seriously restructuring working experience. Under present conditions only those people who are fortunate enough to have developed an already strong learning stance succeed in making routine jobs an opportunity for further growth. In a welding shop we studied, where more than a hundred workers were assembling railroad cars amidst an infernal din and extremes of temperature, there was a sixty-year-old immigrant with a fourth-grade education who illustrates the rare exception. Joe, who was a line worker on the lowest end of the status and pay scale, was respected by management and co-workers alike for his uncanny ability to spot and repair malfunctions in any of the machinery used in the plant. "Without Joe," many of the others said, "this place would have to close. He keeps this plant running." Joe described his uncanny ability to repair mechanical defects very simply. Early on in his life, he said, whenever a machine malfunctioned, he would ask himself, "If I were this thing and I couldn't do my

[12] M. Csikszentmihalyi and R. Graef, "Flow and the Quality of Daily Experience," manuscript submitted for publication, 1979.

[13] R. Graef, M. Csikszentmihalyi, and P. Griffin, "Flow and Work Satisfaction," unpublished manuscript, University of Chicago, 1978.

work, what would be wrong with me?" Having identified with the machine, he would then patiently find out what interfered with its functioning.

The ability to experience flow at work generalized to the rest of Joe's life. At home he had bought three empty lots adjacent to his house, where over the years he built an elaborate rock garden in which he planted hundreds of cacti and succulents. He also installed an underground sprinkling system he designed so that rainbows would form over the garden when the water was turned on. Finally, he placed a system of spotlights next to the sprinklers so that he could make rainbows even at night. Joe had a library of about four hundred books on gardening. Every week, he claimed, he tried to read at least one book on plants, preferably cacti.

In a modest, self-effacing way this poor, uneducated laborer had succeeded in transforming his life, at work and outside it, into a complex growth experience. I can think of no better example to illustrate the learning stance. As William Westley noted, flow in one's job can liberate a tremendous amount of psychic energy. Workers whose jobs are redesigned to allow greater variety and challenge will volunteer their free time for civic activities and will become politically involved. Changing from psychic entropy to negentropy at work makes a great deal of attention available, from grousing to constructive use.

Joe's case is an exception, showing that even under the most inauspicious conditions a person who has developed a learning stance will be able to achieve psychic negentropy and growth. Such exceptions, however, do not relieve us from the responsibility of trying to restructure work and community life to make them more conducive to complex learning. If we reduce the number of what Westley calls "role traps" in occupational settings, a great amount of energy for learning and growth could be generated. Westley's own method of "sociotechnical design" is a good example of how this could be done in practice, so I need not go into that issue here.

If one looks at the causes of the most enjoyable and least enjoyable experiences in everyday life, one finds that in addition to work *other people* are the primary source of both negentropic and entropic states. One-third of the best experiences are explained in terms of enjoying the company of whomever one is with, and about the same percentage of the worst events are due to arguments or other interpersonal tensions.

That suggests that the way one relates to others is a central factor in determining happiness. But can sociability contribute anything to personal growth? In our research with adolescents, we found that teenagers ranked "being with friends" throughout the range of complexity of the flow diagonal, from the very lowest to the very highest level of challenges and skills (this tended not to be true of other activities, which were ranked either only at the low end of complexity, like watching TV, or only at the high end, like playing the piano or participating in athletics). This seems to reflect the fact that interaction with others is remarkably flexible: it can be a relaxing homeostatic activity similar to watching television, or it can be a challenging, growth-producing experience. It is probable that friendships and love relationships, like games, lose their power of attraction when they

cease being enjoyable—that is, when they cease to maintain the optimal ratio of challenges and skills.[14]

Would it be very unorthodox to propose that concern with the learning stance be extended to include interpersonal skills? In addition to being crucial to personal happiness, these are also necessary to maintain social negentropy, by facilitating exchange and integration of information among persons. Here again, the issue is *not* to teach social skills directly. The strategy would be to provide more opportunities for structured interaction, responsibility, and leadership. Of course, people spontaneously make such opportunities available to themselves already: they form religious sects and chess clubs, Elvis Presley fan clubs and professional associations, and so forth. But if the principles derived from the analysis of the learning stance were to be applied to provide opportunities for more and more complex social activities, the overall growth due to interactions could surely be improved.

Elise Boulding describes with great eloquence the complex interpersonal skills that women possess and use in our society. She points out the enormous contribution that women's nurturance makes to collective well-being and the fact that this contribution goes almost entirely unnoticed. While we can quantify the material effects of a change in the GNP, we cannot express the difference that energy invested in reducing interpersonal entropy makes. Clearly it is a priority for any healthy society to recognize nurturant skills and to encourage their development.

Another set of interpersonal problems is that addressed by Jerome Ziegler and Kenneth Benne. They talk about the learning community, the societal organization of problem finding and problem solving. This involves the institutionalization of flow into political action and urban planning and lifts the issue of entropy and growth from the level of the individual to that of the social system. I will not attempt to deal with these issues, except to say that the energy for community action must ultimately come from individual motivation, and thus the conditions for getting people to grow and learn that I have tried to explore in this paper should be relevant to making the learning community possible.

Suggestions for Research

Any of the above ideas for enabling the development of the learning stance must remain tentative and vague until we have firmer knowledge concerning the relevant facts. Thus, it is proper to conclude these considerations with some indications about what questions might be most important to investigate to establish a firmer factual basis for implementing policies.

In the first place, we need to confirm the following relationships: (a) that, other things being equal, one enjoys more an activity from which one learns; (b) that the

[14] M. Csikszentmihalyi, "Love and the Dynamics of Personal Growth," in K. S. Pope (ed.), *On Love and Loving* (San Francisco: Jossey-Bass, 1980).

more opportunities for enjoyment one has, the more happy the rest of one's life is; (c) that the more opportunities for enjoyment one has, the more productive one becomes; (d) that growth in symbolic and nurturant skills is inversely related to material needs and consumption; (e) that enjoyment liberates energy for productive and community action. Each one of these propositions opens up a broad field of research with potentially vital contributions for the theory underlying the learning stance.

Next, it is necessary to find out how the learning stance develops. The following questions need to be addressed at this level: At what point do children show stable differences in the ability to concentrate? to derive enjoyment from the use of skills? How can such differences be affected? How can the range of stimuli to which children respond spontaneously be increased?

Some recent research by Holcomb[15] bears on these issues. She found that college students who reported a wide range of enjoyable activities were able to reverse perceptually ambiguous figures much easier, and showed lower cortical activation levels when paying attention to sensory stimuli, than students who rarely reported enjoying themselves. These findings might mean that the learning stance has a physiological basis—either inherited or acquired. It seems that those who can enjoy themselves in any situation are able to restructure sensory input at lower energy costs. Related to this issue are studies on stimulus over inclusion and anhedonia, which show that inability to control access of stimuli into consciousness, and absence of enjoyment, are crucial symptoms of schizophrenia and related diseases.[16]

Finally, there is a whole host of research that needs to be done concerning the evaluation of policies attempting to affect the learning stance in adults, if and when such are implemented. Of particular interest would be interventions aimed at restructuring jobs and those that try to increase symbolic and interpersonal skills. In the meantime, while waiting for research directly dealing with these issues to be started, it would be important to reinterpret already existing studies in related areas to see what light they shed on the learning stance. The topics of most direct relevance would be those dealing with the development of competence and attentional processes in children, and work satisfaction, intrinsic motivation, and psychological well-being in adults.

The pursuit of happiness has been too "soft" an ideal to generate much interest among either academies or politicians. Perhaps a recognition that happiness consists in complete involvement with a challenging task, from which learning and growth result, will make it possible for us to take this ideal seriously. If this happens, the learning stance might become a high priority research and policy goal, as it deserves to be.

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[15] J. H. Holcomb, "Attention and Intrinsic Rewards in the Control of Psychophysiologic States," *Psychotherapy and Psychosomatics,* 1977, 27: 54–61.

[16] A. McGhie and J. Chapman, "Disorders of Attention and Perception in Early Schizophrenia," *British Journal of Medical Psychology,* 1961, 34: 103–116; and R. Grinker, "Anhedonia and Depression in Schizophrenia," in T. Benedek and E. Anthony (eds.), *Depression* (Boston: Little, Brown, 1975).

Chapter 8
Intrinsic Motivation and Effective Teaching

Mihaly Csikszentmihalyi

There is a great deal of confusion concerning teaching at the university level. Labeling it "teaching" and those who do it "teachers" is part of the problem. To teach implies a transfer of information, and that is not the main purpose of higher education. In fact, those who teach in universities are called "professors," because their primary function is to profess an intellectual discipline. The most relevant meaning of the act of professing is the Middle English connotation of being bound by a vow or the even older Latin one that refers to one's faith in, or expressing allegiance to, some idea of goal.

Thus, at least, originally and ideally, an effective university teacher is one who believes in what he or she does to the point of identifying with it. This view does not simply reflect a quaint historical or etymological curiosity. It continues to represent the most important contribution that teachers at a university can make to the education of their students. Higher education succeeds or fails in terms of motivation, not cognitive transfer of information. It succeeds if it instills in students a willingness to pursue knowledge for its own sake; it fails if students learn simply in order to get a degree. The best way to get students to believe that it makes sense to pursue knowledge is to believe in it oneself. Thus, an effective professor is one who is intrinsically motivated to learn, because it is he or she who will have the best chance to educate others.

When we try to improve the organizational design of schools by changing reward contingencies and feedback systems (see Chaps. 6 and 10 in this volume), we are essentially trying to bring the behavior of teachers in line with some a priori criterion of effectiveness. These attempts are useful for improving the teaching component of a professor's job, but they tend to leave the more essential professing component unaffected. In fact, such attempts might make an allegiance to knowledge for its own sake more unlikely. It may be difficult for an intelligent human being to identify with an institution run by administrators whose main

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question is: "How can environmental conditions be developed so as to increase the frequency and intensity of 'good' teaching?" (as Nord suggests in Chap. 6 of this volume that they should be). Contemporary research suggests that external control and manipulation of this sort may destroy intrinsic motivation (see Chaps. 2 and 4 in this volume). Thus, we might safely conclude that efforts to improve teaching which result in a professor's attributing to an outside agency control over his or her actions will lead to the exact opposite outcome from the one intended (that is, to inefficient education owing to a loss of a professor's intrinsic motivation).

The Loss of Intrinsic Motivation

Before developing this argument further, it might be worthwhile to clarify a few points concerning intrinsic motivation. The importance of this concept is not so much that motivation is an efficient means toward some outside goal—such as becoming a good teacher, learning all there is to learn about a certain subject, or making a great deal of money—but that such motivation reflects an experience that is an end in itself, a dynamic psychological state that is valued for its immediate rewarding qualities.

The intrinsic reward from learning is the enjoyment one gets here and now, from the act of learning itself, and not from what follows later from having acquired the knowledge. Of course, it is possible to derive both intrinsic and extrinsic rewards from the same learning process. For instance, one might enjoy the fascination of learning how the anatomy of the human body works and at the same time enjoy the rewards of good grades that will eventually lead to a medical degree. Yet it seems that if the extrinsic outcome is emphasized at the expense of enjoying the experience as it occurs, the effectiveness of learning is greatly diminished.

In most cultures, and especially in Western cultures since the Industrial Revolution, it has been taken for granted that productive work must be a burden, to be put up with whether one likes it or not. School learning, like work, is expected to be a generally negative experience for both students and teachers. Compulsory education (as if education could ever be compulsory) is generally seen as a painful necessity for all concerned. When workers report their experiences at work, and students at school, it is clear that the motivations that keep them at their task are rarely intrinsic (Csikszentmihalyi et al. 1977; Csikszentmihalyi and Graef 1980; Csikszentmihalyi and Larson 1984). Even students who are highly talented in science or mathematics would prefer to do almost anything else rather than pursue those subjects in school (Csikszentmihalyi et al. 1993). Most people believe that studying and working are naturally unpleasant activities to be avoided if at all possible.

In the nineteenth century, when factory operatives worked 14 and more hours a day, 6 days a week, with a 45 min break for dinner (Thompson 1963; Wallace 1978), few people asked what enjoyment the workers were getting out of their jobs. The goal of workers was to serve the needs of production. Productivity

justified their existence and assured their eternal salvation. How workers felt while accomplishing this was entirely irrelevant.

By now most people accept as common sense that work has to be boring or exhausting. It is seen as a means of obtaining financial rewards that then can be used, in the worker's free time, to achieve the real goals that justify existence. Intrinsic rewards are not expected from work itself. This view has almost achieved the status of an inevitable law of nature. By sixth grade, our children have learned to distinguish reliably between activities that they consider to be work (studying, straightening out their room, taking out the garbage) and those they consider to be play (watching television, hanging out with friends, shooting baskets). When they do something like "work," they report very negative moods and low self-esteem; when engaged in "play," they claim to be happy and high on self-esteem (Csikszentmihalyi and Whalen 1993). Yet there is evidence to suggest that making a living need not conflict with a person's well-being.

A few surviving societies based on hunting and gathering give us a glimpse of productive systems that do not require adults to spend their lives doing things they would rather not be doing. As Sahlins (1972), Turnbull (1962), and others have shown, work in preagrarian cultures was not only much less demanding than it later became—on the order of 3–5 h a day—but it was also considerably more free, challenging, and enjoyable. Work was not distinguished from the rest of life, an undesirable means to a desirable end, but integrated in such a way that one could not tell work from socializing, performance, worship, or simply having fun. In a few contemporary traditional cultures, this happy synergy between playful work and serious play still survives (Delle Fave and Massimini 1988).

At present, our relationship to work in the United States is strangely paradoxical. Most adults report being more satisfied, strong, creative, and generally in a better mood when they work than when they have free time. Despite this fact, they declare a preference for less work and more free time (Csikszentmihalyi and LeFevre 1989; Csikszentmihalyi 1990). Apparently, when it comes to evaluating work, cultural prejudices take precedence over actual experience. At the same time, the work environment could be vastly improved upon if we understood better the necessity for work to produce optimal experiences.

One reason for the negative attitudes toward work, including schoolwork, is that the rationalization of productive techniques in industrial societies has isolated work from most other meaningful experiences. The typical assembly-line or clerical worker operates in a restricted environment; attention must be concentrated on a strictly limited stimulus field, one that allows only the most routine forms of human experience to occur. The same pattern of operating efficiency has spread to other jobs, whether educational, bureaucratic, or technical. With the advent of operant system designs, this pattern threatens to shackle even the liberal profession of university teaching. We have grown accustomed to thinking that work is something to be tolerated in order to achieve future goals and leisure, even though in itself work may be a fundamentally alienating experience. Industrial psychologists have given their blessing to this state of affairs, advising, as it were, workers to resign themselves to their meaningless jobs for the sake of the

paycheck at the end of the week. By and large, this is also the attitude taken by most unions.

Like the king's invisible clothes, the irrationality of this view is rarely questioned. What is the purpose of producing more, of saving, of accumulating material resources, if one's productive activity is, from the worker's point of view wasted? If work is not enjoyable, if it does not allow a sense of growth and freedom, what makes one suppose that the rest of life will be enjoyable, free, and growth producing? Not only does the job take up a substantial amount of time and energy (and become, therefore, quantitatively a large part of one's life); it is also a qualitatively unique aspen of life. As Marx argued in his early manuscripts (Tucker 1978), and as many social scientists have recognized ever since, productive work provides essential feedback to the human self which cannot be obtained from any other source. Acquiescing to the alienation of work means giving up the possibility of developing an integrated self.

Intrinsic Motivation and the Process of Higher Education

In human terms, any act that is not intrinsically rewarding is wasteful. An activity is intrinsically rewarding when the actor experiences it as worth doing for itself, not just as a means to future, external goals (Csikszentmihalyi 1975; Csikszentmihalyi and Rathunde 1993). Life is wasted to the extent that it is spent doing things that one does not wish to do. These considerations, which apply to work in general, are particularly relevant to higher education. The point is that for a professor, intrinsic motivation is both the product of the activity and the means by which the product is realized.

Basically teaching involves changing the learners' cognitive structures, and, more important, changing their goal structures. The product of teaching is a socialized individual, a young person who shares the goals valued in a given society. At the university level, this socialization includes a set of intellectual goals. To accomplish this end, according to the operant model on which teaching machines are based, the teacher is supposed to transmit information and award rewards and punishments (or positive and negative feedback) contingent on the learner's progress.

But this is a very impoverished view of what teaching is about, because transmission of information is of marginal importance to the primary goals of teaching. In this respect, Carl Rogers was right when he said: "It seems to me that anything that can be taught to another is relatively inconsequential and has little or no significant influence on behavior…. I have come to feel that the only learning which significantly influences behavior is self-discovered, self-appropriated learning. In such self-discovered learning, truth has been personally appropriated and assimilated in experience, and cannot be directly communicated to another" (quoted in Marty 1979, pp. 196–197).

Although it is true that information is transmitted in lectures and seminars, the real task of a professor is to enable the learner to enjoy learning. Education works when the student becomes intrinsically motivated to acquire the information or the goals to be transmitted; at that point, the major part of the teacher's task is accomplished. Learning motivated by extrinsic rewards is costly to maintain and easy to extinguish in the absence of reward contingencies. Recent experimental evidence suggests that, contrary to behaviorist assumptions, extrinsic rewards might in some circumstances inhibit rather than promote learning (Lepper and Greene 1978; see also Chaps. 2, 4 and 10 in this volume).

The product of teaching, then, is an intrinsically motivated learner. A teacher has done his or her job when the students enjoy learning and look upon the activity of learning as an end in itself, rather than as a means to an external goal—a grade, a diploma, or a job. Admittedly, it is difficult to measure teaching effectiveness by this criterion. It is easier to measure it by the amount of information transmitted to the student, but such a criterion is not terribly useful unless one knows whether the student wants to retain, use, and increase the information learned. Knowledge that is not intrinsically motivated is not much good to anybody.

Intrinsic Motivation and Students

If the product of teaching is a student who enjoys learning, what are the means by which a teacher can accomplish this purpose? How does one get students to enjoy learning? Here, again, the answer is in principle very simple: by enjoying learning. A teacher who is intrinsically motivated to learn has a good chance to get students to seek the intrinsic rewards of learning.

Young people are more intelligent than adults generally give them credit for. They can usually discern, for instance, whether an adult they know likes or dislikes what he or she is doing. If a teacher does not believe in his job, does not enjoy the learning he is trying to transmit, the student will sense this and derive the entirely rational conclusion that the particular subject matter is not worth mastering for its own sake. If all the teachers they are exposed to are extrinsically motivated, students might well conclude that learning in general is worthless in and of itself.

Such a reaction on the part of young people is eminently adaptive. Why should they want to spend their lives being bored? Why should they emulate a model who is already alienated from his or her life activity? The young are in general less resigned than adults to the prospect of a meaningless life. They look around them for adults who seem to enjoy their jobs, who believe in what they are doing, and take them as models. Of course, young people can also be fooled, like everyone else. They get fooled by people whose job it is to pretend to enjoy what they are doing even when they do not—that is, professional athletes and entertainers who try to convince the uncommitted youth that it is worth growing up because adult life can be enjoyable (Csikszentmihalyi 1981).

At close quarters, it is more difficult to dupe a young person into believing that something matters when it does not. Professors who are cynical about their jobs, who do not enjoy what they are doing, do not help the transmission of knowledge; they only spread cynicism down another generation. At the same time, a teacher who loves the subject and enjoys the process of thinking is the most convincing argument for the usefulness of knowledge. This does not mean, of course, that if Ms. X enjoys mathematics, all of her students will adopt her for a model and become intrinsically motivated to pursue mathematics. Too many other variables help to determine the process: the students' talents, competing interests, the degree to which they are already convinced that math is boring or meaningless. But even those students who will never be turned on to math will know that it is indeed possible to love it, because Ms. X bore witness to that unlikely possibility. And that knowledge might in the long run be more useful than facility in calculus.

When students are asked about teachers who were influential in their lives, and the reasons for such influence, their answers do not fit into the theories that social scientists have developed to account for the effectiveness of role modeling. According to the classical theories, a young person wants to imitate an adult who has status and power, someone who has control over desired resources, who can reward and punish (Bandura and Walters 1963; Bronfenbrenner 1973). Socialization is supposed to be based primarily on fear, envy, and greed. Somehow this neat explanation manages to ignore the rather obvious fact that young people will imitate adults who find life worth living—even in the absence of status, power, and control over resources.

The most influential teachers—those who are remembered, who made a difference in the way we see ourselves and the world, who stirred us in new directions, and who revealed unexpected strengths in us or made us aware of our limitations—are not necessarily the ones who had more status, power, or control. They might or might not have been exceptionally intelligent or knowledgeable, but they were usually the ones who loved what they were doing, who showed by their dedication and their passion that there was nothing else on earth they would rather be doing (Csikszentmihalyi and McCormack 1986).

Students we studied often described their most influential teacher with some variation of: "Oh, he was such a nut!" This is not, as it turns out, because the teacher was funny or entertaining but simply because his or her involvement in the subject matter seemed, by normal standards, to be excessive—in fact, almost crazy. Yet it is such holy fools who keep the fabric of knowledge from unraveling between one generation and the next. If it weren't for them, who would believe that knowledge really mattered?

It is the teacher who cares about his or her craft who makes students want to care for others. As I first drafted these pages, one of the teachers I had in college died. At his funeral, I was trying to figure out how he had managed to make such a difference in my life and in the lives of several other former students who had come to mourn his passing. Robert Nickle, who taught design at the University of Illinois for several decades, was a terrible teacher. He could not explain what he wanted from us, nor did he try to; he did not demonstrate how to do things; his

feedback to students was erratic and arbitrary. We were in a constant state of uncertainty and confusion in his classes. He violated all the rules of rational transmission of information; he was the exact antithesis of a well-designed teaching machine. Yet what a great professor he was! His concern for good design, for the integrity of vision and execution, was clear to everybody; it was etched in the lines of pain on his face when confronted with a facile drawing, or in the look of exultation that—alas, much more rarely—passed over his features when someone broke away from a conventional cliché. It was clear that he enjoyed every minute of his work, even though most of it was painful. He could not fake enthusiasm, conviction, or belief either for our sake or for his own, but this very submission to the rules of art generated enthusiasm, conviction, and belief on our parts.

If I think back on the other teachers since college who have had similar effects on me—and how few they were—the same characteristics emerge. Whether the subject matter was philosophy, or statistics, or psychology, it is not the knowledge or prestige of teachers that I remember, or the correctness of their methods. It is, rather, the conviction they conveyed that what they were doing was worth doing, that it was intrinsically valuable. This is the means by which the goal of education can be achieved, and it is not something teaching machines or audiovisual aids can be built to simulate. It is not the transmission of information but the transmission of meaning which is involved (Nehari and Bender 1978). Information can be conveyed in many ways, such as through books, instruments, machines, and so forth. Meaning, which refers to information that is integrated in terms of a person's life goals, cannot be taught; it can only be demonstrated in one's own actions. This is essentially the kind of learning Carl Rogers, in the quote above, has called "self-discovered." A person who professes a set of meanings has a chance to stimulate such discovery, or the meaningful integration of information, in others.

On the most general level, education refers to the process by which youths agree to become adults. It is not just a question of behaving like adults but of liking to be adults. That this process is not an automatic one is shown by the 300 % increase in adolescent suicides over the past 30 years (Social Indicators 1981; Wynne 1978; Csikszentmihalyi 1990) and by the similar increases in drug addiction, delinquency, and other forms of deviance. These trends indicate that young persons in our society are refusing, in increasing numbers, to grow up into adulthood. Education fails when becoming an adult is no longer a desirable option.

From this point of view, the main function of the teacher is not to teach science, math, or literature; it is to make being an adult seem like a worthwhile option. Of course, this modeling responsibility is not peculiar to teachers alone, but rests upon every adult member of our society. The task specific to teachers is to demonstrate, by their own example, that being an educated adult is a goal worth striving for.

It is possible that the survival of a culture over time depends on whether the older generations are able to convince the younger ones that growing up makes sense. To be convinced, a youth has to feel that being an adult can be meaningful. This in turn requires exposure to persons who derive intrinsic rewards from adult roles, Similarly, young people will not want to become philosophers or scientists if their

teachers do not enjoy philosophy or science. Even within a given field, the development of subfields seems to be a function of differential intrinsic rewards. As Kuhn (1970) suggests, young scholars will move to research areas that promise to be exciting and enjoyable and will abandon those that seem boring. Thus, intrinsic motivation is a crucial link in the transmission of cultural forms across time.

Enjoyment in the History of Pedagogy

It would be easy enough to dismiss this emphasis on intrinsic rewards in learning as a modem conceit. Yet few strands of thought in the history of education have a longer pedigree. When Plato wrote about the conditions necessary for learning in the Symposium and Phaedrus, the major part of his argument revolved around the importance for young people to enjoy what they were being taught.

Closer to our time, John Dewey formulated most clearly the pedagogical function of enjoyment. He saw that to be effective, teaching had to achieve two complementary results: It had to produce an experience of pleasure at the moment, and it had to convey knowledge that made future growth possible. For instance;

> Everything depends upon the quality of experience which is had. The quality of an experience has two aspects. There is an immediate aspect of agreeableness or disagreeableness, and there is its influence upon later experience…. Hence, the central problem of an education based upon experience is to select the kind of present experiences that live fruitfully and creatively in subsequent experience. (Dewey 1938, p. 27)

True education, according to Dewey, is a spiral and dialectical process. The task of the teacher consists in stimulating students' enjoyable experiences in a learning context, so that they would want to repeat such experiences on their own.

> It is part of the educator's responsibility to see equally two things. First, that the problem grows out of the conditions of the experience being had in the present, and that it is within the capacity of students; and, secondly, that it is such that it arouses in the learner an active quest for information and for production of new ideas. The new facts and new ideas thus obtained become the ground for new experiences in which new problems are presented. The process Is a continued spiral, (Dewey 1938, p. 79)

Similarly William James, the great early American psychologist, understood that without enjoyment there could not be genuine learning. "For to miss the joy is to miss all," he writes, quoting Robert Louis Stevenson. "In the joy of the actors lies the sense of any action" (James 1917, p. 7). This insight, too, has a long history, going back to Aristotle and to medieval Western philosophy (Csikszentmihalyi 1993). For instance, more than 600 years ago the poet Dante wrote that "in every action… the main intention of the agent is to express his own image; thus it is that every agent, whenever he acts, enjoys the action. Because everything that exists desires to be, and by acting the agent unfolds his being, action is naturally enjoyable" (Alighieri 1317, pp. 1, 13).

Of course, joyful learning occurs only if students in schools are allowed to act, thereby "unfolding their being." Unfortunately, however, all they are allowed to do is re-act. As is generally the case with complex insights, the ideas of Plato, Aristotle, Dewey, and James were often trivialized in their application to educational practice. Instead of trying to combine enjoyable experience with hard work, teachers took the easier route of substituting the former for the latter. Yet Dewey had been very clear that neither of these approaches was effective in isolation from the other. Mere playfulness without concentrated work is just as inimical to learning as drudgery, "To be playful and serious at the same time… defines the ideal mental condition" (Dewey 1933, p. 286). How to integrate these two quite different aspects in the same experience is the main challenge that educators face.

A Model of Intrinsically Rewarding Learning

The argument thus far has striven to establish that lack of enjoyment in teaching deprives the activity of its main value for both the teacher and the student. Teachers who do not find their subject matter worthwhile in and of itself but teach it only for extrinsic reasons—pay or prestige—waste their own time and convey the message to students that learning lacks intrinsic value and is only a means to other ends.

The question then becomes. What makes leaching enjoyable? Is it possible to learn to enjoy teaching? While one can certainly learn to enjoy teaching, I have argued that learning cannot be taught. The intrinsic rewards and the meaning of the activity must be discovered on one's own. It is possible, however, to reflect on those aspects of teaching which have the greatest potential for providing intrinsic rewards and to experiment with them until a personally meaningful combination of rewards is discovered. To facilitate this task, we shall review a general model of enjoyment which has been found useful in a variety of contexts and then apply it to the activity of teaching.

Research with intrinsically motivated individuals suggests that whenever a person has fun, whether it is dancing or playing chess, climbing a mountain, or studying in a classroom, a similar set of inner experiences and environmental conditions is present (Csikszentmihalyi 1975, 1978a, b, 1979, 1990, 1993; Csikszentmihalyi and Larson 1978; Csikszentmihalyi and Csikszentmihalyi 1988; Csikszentmihalyi and Rathunde 1993). The experience of enjoyment, or flow, as we came to call it, is characterized above all by a deep, spontaneous involvement with the task at hand. In flow, one is so carried away by what one is doing and feels so immersed in the activity that the distinction between "I" and "it" becomes irrelevant. Attention is focused on whatever needs to be done, and there is not enough left to worry or to get bored and distracted. In a state of flow, a person knows what needs to be done moment by moment and knows precisely how well he or she is doing. In flow, a person usually does not worry about the consequences of his or her performance. The sense of time becomes distorted; hours seem to pass

by in minutes, but afterward on might feel that an eternity has elapsed. The ego that surveys and evaluates our actions disappears in the flow of experience. experience. One is freed of the confines of the social self and may feel an exhilarating sense of transcendence, of belonging to a larger whole.

These qualities describe how people feel when they enjoy what they are doing. Surgeons in the operating room or laborers on the assembly line use the same words to describe their work when it is enjoyable and rewarding. What we know about flow is that its presence depends a great deal on two conditions: how the activity is structured objectively, and how the person perceives the structure of the activity. For instance, every game is structured so as to make the focusing of attention on the play activity easy, and it provides clear goals, rules, and feedback. These structural features engage the player's attention, producing a flow experience. However, a person might restructure stimuli in his or her consciousness so as to produce flow without assistance from prestructured patterns in the environment and thus experience flow outside ready-made cultural play forms. This is what children, yogis, mathematicians, artists, and countless unsung average people can do at times.

A decisive structural factor for enjoyment is the balance of challenges and skills. At any given moment, we process in consciousness two crucial pieces of information: "What can be done here?" and "What am I capable of?" The first question deals with the opportunities for action in the environment, or challenges. The second concerns one's own capacity to act, or skills. When challenges overwhelm skills, we feel anxious; when skills outweigh challenges, we feel bored. Flow occurs when we come close to matching the two. Here, again, we meet the external and internal dialectic of flow: Challenges and skills are partly objective features of the situation; partly they are the results of one's subjective attitude. The two are related, and both are important in producing the experience.

An essential feature of this structure of challenges and skills is that the balance is not static. If the complexity of challenges one faces does not increase with time, flow gives way to boredom. As we practice an activity, our skills in it increase until they outweigh the challenges. Hence, to maintain flow, provisions must be made to find new things to engage our attention and skill, lest what used to be fun drift into tedium.

In summary, learning, like any activity, can become rewarding if it meets the following conditions:

1. *There must be clear goals.* The person should know what is to be done at every moment and why. In a classroom situation, it is not enough for students to have only a general idea of the purpose of the lecture or the assignment. In order to enjoy learning, they should have a continuous sense of what is going on, just as a person playing basketball or a surgeon performing an operation knows at every instant what needs to be done. Similarly, teachers will enjoy teaching if they always know what they are doing and why.
2. *There must be immediate feedback.* In order to enjoy learning, students should receive information as quickly and frequently as possible about how well they are doing. At first, feedback has to come from the outside— from the teacher or

some other external source—but eventually students will learn to administer feedback to themselves. Learning is completed when a person knows whether he or she is right or wrong without external help, and at that point feedback will be continuous and therefore learning enjoyable. (The teachers' feedback is the students' learning: the look of comprehension on their faces, the questions they ask, the answers they give. Without a constant stream of feedback from students to teachers, the job of teaching becomes dry and mechanical.)

3. *Challenges and skills must be in balance.* Students should have the option of increasing or decreasing the difficulty of the task so they can match as well as possible their abilities with the requirements for action. The teacher's task is to help provide new challenges when old ones are mastered and to model new skills if the challenges become overwhelming. Preferably a broad range and variety of challenges should be presented, so that students with different abilities can become involved. For instance, it makes sense to test knowledge in a course by a variety of different tests and assignments, some measuring memory, others rational abilities, empirical relations, and emphatic understanding. If the teacher does not increase his or her challenges continuously, by trying new methods and integrating new material, the job soon becomes boring.
4. *Concentration is essential*. In classrooms, students pay attention to what teachers say or do only a fraction of the time. Yet without focusing attention no learning can occur. At first, the teacher may have to attract attention by connecting with students' already existing interests and motivation. It is essential, however, to know how to transfer attention from these to the subject matter fairly soon. When the previously described conditions are present and the student begins to concentrate, the flow experience usually follows, and learning becomes intrinsically rewarding.
5. *Distractions must be avoided.* Irrelevant stimuli—a lecturer's mannerisms or self-indulgent stories, emphasis on meaningless details or bureaucratic procedures—destroy the concentration that makes involvement in the learning process enjoyable. A common source of distraction is an unnecessary threat to the students' ego, such as emphasizing grades or ridiculing performance. Creating self-consciousness is a sure way to distract the learner. Whatever the teachers can do to cut out distractions from their main task will increase the enjoyment of teaching.
6. *Control must be made possible.* All too often, teachers satisfy their own need for power and self-esteem by depriving students of any control over the learning process. Yet without a sense of choice, it is impossible for students to act in the Aristotelian sense of expressing their being. And without the possibility of control, it is very difficult to enjoy what one is doing. Obviously one cannot give complete freedom of choice to students in a classroom. But whatever a teacher can do to transfer the responsibility for the learning process to students ought to bring great dividends in intrinsic motivation. Similarly, teachers may need to get involved in bringing about structural changes in their schools to achieve greater control in their own jobs.

7. *Growth and self-transcendence must be enhanced.* Although a person usually forgets him- or herself in flow, afterward one feels that as a result of the experience one has achieved a higher level of skills, an expanded sense of self. It is important for teachers to make students aware that learning is a matter not just of absorbing information but of becoming part of a community of learners. The original meaning of education in Latin was to "lead out," in other words, constantly to expand the limits of the self. Excessive mystification of the learning process is not a good idea, but a certain amount of ritual and symbolism is appropriate and can lead to an easier focusing of attention. After all, we have all sorts of rituals before football and basketball games, which help the audience's involvement with the action to follow, whereas classroom activities often lack clear demarcation from the attentional structures of everyday life.
8. *The autotelic nature of true learning must he highlighted.* It is important for teachers and parents not to emphasize too much the instrumental aspects of education. The more learning is talked about as simply a ticket to a well-paying job, the less easy it will be for students to realize its intrinsic rewards. The most effective message is one that is embodied in the adults' living example. A parent or teacher who reads complex books for enjoyment, who listens to stimulating music in free time, who gets involved in ideas and in challenging conversations, is a concrete proof that learning can be rewarding in and of itself.

Establishing Flow in Teaching

In teaching, two main action systems provide intrinsic rewards. One is the educational process itself (i.e., the changes in the student's performance attributable to the teacher's actions). The challenges here are to attract and maintain the students' attention and to motivate them to pursue goals valued by the teacher. The second set of intrinsic rewards is provided by the subject matter. The challenges here refer to the continuing integration of new information on the teacher's part. In other words, it is the teacher's own learning that is enjoyable. Although these two aspects are independent of each other—one can enjoy teaching without learning much that is new about the subject matter and vice versa—they are not mutually exclusive. In fact, teaching is probably most effective when the teacher enjoys both processes at the same time.

Subject Matter

Presumably there are subject matter differences in the ease of establishing flow in a classroom. Science and math, for instance, have the initial disadvantage of presenting too many challenges to students, who start out being anxious and often remain in that state without ever enjoying the learning process. But once skills are

matched to challenges, it is probably easier to sustain the flow experience in science and math than in humanities or social sciences because the goals, the rules, and the feedback are much less ambiguous in the former. Certain subjects, such as art, music, or drama, have the advantage of clearly demarcating the field from everyday life and therefore admitting greater concentration with fewer distractions. Our studies have shown that students find intrinsic rewards much more easily in art and music than in math and science. But it is very difficult to develop high levels of proficiency even in math and science if one does not enjoy the subject (Csikszentmihalyi et al. 1993). Presumably, any subject can be taught enjoyably if the teacher understands the principles of flow.

Classroom Structure

Structural aspects of the classroom situation will also have an effect on how much enjoyment teaching can bring. For instance, lecturing to a large class makes it almost impossible for the teacher to monitor individual changes in students. Similarly, if students are seen for only a semester or a year, the teacher will have little opportunity to get feedback about how they have changed. Without such feedback, there is little enjoyment to be derived at the educational level. A class that consists of students with widely different levels of preparation also detracts from the enjoyment of teaching because the challenges facing the teacher are incongruent with each other, A structurally adversary relationship between teacher and students, as in required courses, also has the same result. If for these or other reasons teaching cannot be turned into a flow activity, the effectiveness of the class will be reduced for both teacher and students because the experience will cease to be intrinsically rewarding.

Under conditions that make teaching unrewarding, the professor may change the rules and shift into a performing mode. As a performer, he or she need not be concerned with specific changes in individual students; the feedback that counts is the audience's spellbound attention. Charismatic teachers—those who have the skills to project emotions and meanings—might enjoy classroom conditions that would make others bored or anxious. Such teaching is effective in so far as it communicates to the students that the teacher values knowledge for its own sake and therefore enjoys the symbolic manipulation of knowledge. Of course, other things might be communicated as well, messages that conflict with the educational goal, for instance, that the teacher enjoys being the center of attention, that his rewards derive from being powerful or entertaining.

It is outside the scope of this chapter to detail techniques that might turn teaching into a flow activity. Research could help identify and describe such techniques, but at this point there are virtually no studies of intrinsic motivation in teaching. The chapters in this volume, particularly Chaps. 2, 4, and 7, suggest techniques that are congruent with the flow model by demonstrating either how distractions can be eliminated or how conditions for involvement with challenges

can be enhanced. General studies of teachers, such as the ones by Lortie (1975), Dubin and Champoux (1977), and Miskel et al. (1980), have started to explore the motivational structure of educators, but their perspective is still too broad to provide the kind of detail needed to know how teaching is to be turned into an enjoyable experience. Apparently there is no study relating a teacher's motivation to the effectiveness of his or her teaching—in other words, to the students' motivation. One pilot study by Plihal (1981) shows that grade school students pay more attention in the classes of teachers who rate enjoyment as the highest reward of teaching. Obviously, we need more studies of this type at higher levels of education.

In fact, a great many questions arise if one accepts as testable the propositions advanced here. To accept them, one must modify current assumptions about the effectiveness of teaching. Instead of emphasizing transmission of information as the criterion of good teaching, the importance of intrinsic motivation, both as a means and as a goal of education, should be recognized.

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Chapter 9
The Social Context of Middle School: Teachers, Friends, and Activities in Montessori and Traditional School Environments

Kevin Rathunde and Mihaly Csikszentmihalyi

Early adolescence is a crucial developmental period; the habits of thought crystallized during this time can have long-term effects on lifelong learning, quality of life, and career success (Csikszentmihalyi and Schneider 2000; Sternberg 2001). Unfortunately, young adolescents encounter many difficulties in the transition to middle school (Carnegie Council on Adolescent Development 1989, 1995; Eccles et al. 1993; U.S. Department of Education 1991). Middle school students may start to doubt their abilities to succeed (Simmons and Blyth 1987; Wigfield et al. 1991), and their intrinsic motivation to learn often declines (Anderman et al. 1999; Gottfried 1985; Harter et al. 1992). A growing number of scholars have suggested that these academic risks emerge in response to a mismatch between adolescents' developmental needs and the nature of middle school classrooms and cultures (Andaman and Maehr 1994; Eccles et al. 1993; Felner et al. 1997; Hicks 1997; Maehr and Midgley 1996).

Much is known about the type of school context that is likely to benefit students, and a number of studies have explored ways to transform middle schools to enhance student learning and intrinsic motivation (Ames1992; Lipsitz et al. 1997; Maehr and Midgley 1996; Sternberg 2001). However, implementing comprehensive reform and transforming an entire school is a complex process. If a researcher is not trying to change a school, it is hard for her/him to find schools that have incorporated the insights of current motivation theory and are willing to allow

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research (Mac Iver et al. 2002). Therefore, it is often difficult to assess whether reforms discussed in the literature would enhance student engagement.

The present study offered a unique way to assess suggestions for reforming middle school environments. It explored five well-established middle schools that are based on the thought of Maria Montessori. Although the Montessori philosophy is primarily associated with early childhood education, approximately 250 middle schools incorporate some aspect of it (D. Kahn, personal communication, July 9, 2003). Due to the central focus on students' intrinsic motivation and the required teacher training, Montessori schools have a shared culture that reflects some of the educational reforms associated with contemporary motivation theories (see Anderman et al. 1999; Eccles et al. 1993; Hickey 1997; Maehr and Midgley 1996; Rathunde and Csikszentmihalyi 2006). A recent study showed that students from these five Montessori schools reported higher intrinsic motivation, interest, and flow experience in academic work than students from a demographically matched set of traditional middle schools (Rathunde and Csikszentmihalyi 2005). The focus of the present study, in contrast, was on the social context differences that accompanied the positive motivation outcomes. More specifically, in this study we used the Experience Sampling Method (ESM) (Csikszentmihalyi and Larson 1987) and questionnaires to assess (a) how the Montessori and traditional middle school students viewed their schools, teachers, and classmates; (b) who the students were spending time with while doing their academic work; and (c) what activities the students were doing in school.

Importance of Social Context in Middle School

A growing amount of research has revealed how important the classroom context is for student engagement (Anderman and Maehr 1994; Brophy 1998; Maehr and Midgley 1996; Stipek 1998); unfortunately, there are often problems with the contexts that students encounter in middle school (Eccles et al. 1993; Felner et al. 1997; Hicks 1997). Three main areas of concern were the focus of this study. First, at a precarious developmental time when adult support is crucial to young adolescents, students may see teachers as more remote and focused narrowly on student achievement and social comparison (Brophy 1998; Feldlaufer et al. 1988; Wentzel 1998). Second, at a time when peers are becoming more highly valued (Brown 1990; Csikszentmihalyi and Larson 1984; Savin-Williams and Berndt 1990), there can be fewer opportunities for students to collaborate with peers on meaningful activities (Eccles et al. 1991; Felner et al. 1997; Hicks 1997; Stipek 1998. Finally, just as young adolescents are becoming capable of complex and integrative thought (Piaget 1952; Sternberg 2001), the educational setting often involves a heavy dose of lecture and seat work that students find tedious and confining (Guthrie and Davis 2003; Hickey 1997; Mac Iver et al. 2002). Research in all three areas has suggested that, when these conditions occur in middle schools, they can negatively affect student motivation, experience, and achievement.

Schools are inherently social places, and their interpersonal dynamics have a great potential to influence student motivation and interest (Deci 1992; Juvonen and Wentzel 1996). Of central importance to students' motivation is the quality of teacher–student relations and teacher support (Fraser and Fisher 1982; Goodenow 1993; Harter 1996; Midgley et al. 1989; Wentzel 1998, 2002). Wentzel (1998, 2002) drew on parental socialization models (e.g., Baumrind's construct of authoritative parenting) to help understand teacher influence; her findings suggested that teacher nurturance and expectations for maturity were strong predictors of student motivation and achievement. Teachers also influence student motivation by the way they structure opportunities for student autonomy (Brown 1997; Grolnick and Ryan 1987; Skinner and Belmont 1993) and by what they communicate about the goals of the learning environment (Ames and Ames 1984; Deci et al. 1999). For example, when a teacher creates an environment that emphasizes public performance instead of task engagement or mastery, student motivation suffers (Anderman et al. 1999; Brophy 1998; Maehr and Midgley 1996). The enhanced competition and evaluation brought on by performance goals often promote self-consciousness and risk aversion at this sensitive developmental stage (Harter 1990).

Perhaps the most neglected topic of research on the social context in middle school is peer relations. The influence of the peer group is especially high in early adolescence (Steinberg and Silverberg 1986). Although the relation of peer interaction to the development of important social skills is widely acknowledged (Brown 1990), much less is known about how peers provide a context for the socialization of adolescent motivation in middle school (Eccles et al. 1998; Magnusson and Statin 1998; Ryan 2000, 2001). Research thus far, however, has suggested that successful peer relationships and opportunities for interaction are important for student engagement, use of successful cognitive strategies, adjustment to school, and academic achievement (Berndt and Keefe 1995; Brown 1990; Hicks 1997; Nichols and Miller 1994; Ryan and Patrick 2001; Wentzel 1998). Positive interactions may also be important for students' self-regulation; when discussion is promoted and students can draw on information from other perspectives, it improves their ability to strategize and plan a task (Dimant and Bearison 1991; McCaslin and Good 1996).

Classroom activities are another important influence on student motivation and the social dynamics of a school. After leaving the elementary grades, students report a steady decline in interest, choice, and enjoyment of classroom activities (Gentry et al. 2002). Part of this decline might be related to the greater use of textbooks; textbooks often formalize instruction, eliminate student choice, reduce the variety of information, and minimize real-world applications (Guthrie and Davis 2003; Mac Iver et al. 2002; Shernoff et al. 2003). In addition, the organization of activities in a classroom can affect interpersonal relations at school (Pintrich and Schunk 2002; Ryan and Patrick 2001). Students report that active and authentic tasks, such as doing an experiment, help them to learn (Hickey 1997; Singer et al. 2000); in contrast, passive activities like listening to a lecture or

watching educational videos are less often perceived as helpful (Freeman et al. 2002). When tasks are more collaborative, students also report a stronger mastery goal orientation (Nichols and Miller 1994).

Montessori Ideas, Motivation Theory, and the Social Context at School

The extent to which Montessori ideas might contribute to current debates about reforming middle schools has gone unrecognized, likely because Maria Montessori's writings primarily addressed early childhood education (Montessori 1965, 1981). However, the transposition of her educational philosophy to middle schools, although less specific in terms of pedagogy, retains the main theme of creating an environment for intrinsic motivation. Furthermore, in several key aspects, the Montessori approach has much in common with two current motivation theories: goal theory (see Anderman et al. 1999) and optimal experience (flow) theory (Csikszentmihlayi 1990; Rathunde 2001; Rathunde and Csikszentmihalyi 2006).

School reform strategies based on goal theory have focused on ways to reduce students' performance anxiety and reinforce their intrinsically motivated task focus; these strategies have been summarized with the acronym TARGET (i.e., task, authority, recognition, grouping, evaluation, and time; see Ames 1992; Anderman et al. 1999). The five Montessori middle schools in this study reflected several of the practices suggested by the TARGET proposals (see the Method section). For example, the schools shared a culture that emphasized a *task focus.* Teachers were trained in a Montessori perspective that emphasized paying attention to students' interests; to facilitate interest, teachers provided students with several hours per day for self-directed projects. *Authority* was not rigidly hierarchical in the classrooms; students often planned details of field trips, made decisions about topics to study, and were called upon in "leadership groups" to coordinate basic school maintenance. *Recognition* of students was done in ways that avoided achievement competition; one frequently used strategy was to have students research a topic of personal interest and then be responsible for presenting the information to the class. Ability *grouping* was avoided; classrooms were multiage (i.e., more than one grade level), and student groups were typically based on shared interests. Because much daily time was unstructured, students had ample time for peer interaction and collaboration, and teachers strongly encouraged this practice. In terms of *evaluation,* only about one-quarter of the Montessori students received grades; however, grades were not mandatory. The use of "progress reports" was the standard practice. Finally, *time* was managed in flexible ways. For instance, block scheduling allowed teachers to increase or decrease contact time with students depending on what was happening at the moment in the classroom.

Optimal experience theory explores the role of subjective experience in the development of a person's skills and talents. The central concept in the theory is *flow,* an intrinsically motivated, task-focused state characterized by full concentration, a change in the awareness of time (e.g., time passing quickly), feelings of clarity and control, a merging of action and awareness, and a lack of self-consciousness (Csikszentmihalyi 1990). Maria Montessori believed that children's deep concentration revealed the essence of being human, and there is little doubt that what Montessori had in mind when speaking about concentration was something akin to flow. According to Standing's (1984) biography of Montessori, the turning point in the development of her method occurred after she observed a 3-year-old child who was so engaged with wooden cylinders that she could not be distracted. Montessori commented: "Children not only work seriously but they have great powers of concentration. … Action can absorb the whole attention and energy of a person. It valorizes all the psychic energies so that the child completely ignored all that is happening around him" (Montessori 1946, pp. 83–84). After witnessing this episode with the young child, Montessori apparently became dedicated to creating a school environment that fostered deep engagement and concentration.

The policies and practices of the five Montessori schools in this study emphasized the quality of student experience. According to optimal experience theory, flow experience involves a dynamic affective-cognitive combination that sustains attention and generates the momentum necessary to trigger flow experiences (Rathunde and Csikszentmihalyi 2006). Therefore, education reform ideas based on the theory advocate integrating feeling and thinking rather than separating them, as is often the case in middle school and high school curricula (e.g., the often rigid dichotomy of the arts and sciences) (see Csikszentmihalyi et al. 1997; see also Dewey 1934/1980). Montessori also recognized that separating cognition from its experiential and meaningful context would result in excessive abstraction and a poor quality of school experience. She tried to reinforce an affective-cognitive combination by stressing the importance of integrating acting and thinking in the classroom (Montessori 1976). Thus, hands-on tasks played a central role in the five Montessori environments in this study. Teachers avoided overtly didactic lessons (i.e., lecturing) whenever possible and instead provided more active learning opportunities (i.e., group or individual projects, activities or field trips outside of the classroom, etc.).

In summary, Montessori educational philosophy has much in common with the insights of contemporary motivation theories in terms of creating social contexts in middle school that are likely to lead to positive student motivation. We hypothesized that the social contexts in the Montessori and traditional middle schools would differ with respect to teachers, peers, and the activities that connected them. More specifically, we predicted that the Montessori students would have more favorable views of their schools and teachers, report more positive peer interaction, and spend less time in passive educational tasks (e.g., listening to a lecture) and more time in active pursuits (e.g., group or individual projects).

Method

Selection of Schools and Students

The Montessori and traditional schools selected for study were similar in terms of important demographic characteristics but different with respect to key aspects of the school context. The selection procedure and steps taken to compare and differentiate the two sets of schools are summarized in detail below.

After consulting with officers of the North American Montessori Teachers Association (NAMTA), we selected five Montessori schools from four U.S. states to participate. The selection of schools was not random; well-established middle school programs were chosen that incorporated aspects of the Montessori model that would clearly differentiate them from traditional public schools. The selection criteria were informed by some of the Carnegie Foundation's Turning Points criteria (i.e., those emphasizing developmentally sensitive, smaller, and more personalized communities for learning), but were more directly related to ideas from optimal experience theory and the TARGET reform proposals. Montessori schools were chosen that (1) had an explicit philosophy of intrinsic motivation that emphasized spontaneous concentration and freedom within discipline (i.e., the school was clearly based on Maria Montessori's extensive writings); (2) provided students with significant unstructured time for self-directed work (an average of approximately 2 h per day) and did not use the typical block period organization (e.g., 45 or 50 min per subject); (3) did not employ mandatory grading or standardized testing for comparative purposes and student placements; (4) had formalized opportunities for students to play a role in daily decisions that affected the school (e.g., curriculum choices, school purchases, destination of field trips, etc.); and (5) infrequently used whole-class lecture formats and instead encouraged students to work individually or collaboratively in smaller groups.

Five Montessori schools that clearly met the above criteria were contacted and agreed to participate. Approximately 150 students (60 % female and 40 % male) comprised the sixth- and eighth-grade classes at these schools and filled out the background questionnaire; about 140 students provided valid ESM information (see Measures). European Americans comprised 72.6 % of the sample, 10.2 % were Asian Americans, 12.7 % were African American, 1.9 % were Latino, and 2.6 % of students were from other ethnic backgrounds. The majority of the students were from four suburban schools in middle-or upper-middle-class communities; eight of the students (all eighth graders) attended a rural school. Four of the schools were private. The teacher-student ratio was approximately 20:1.

The traditional middle schools and students were selected from a larger study involving 20 middle schools and approximately 400 students in grades 6 and 8 (see Csikszentmihalyi and Schneider 2000). The full sample encompassed all social class levels, and approximately half of the students were from ethnic minority families. Because previous research has shown that family characteristics, socioeconomic status (SES), and ethnic background are strongly related to students'

engagement in the classroom (Becker 1990; Finn 1993; Lee and Smith 1993; Marks 2000; Wentzel 1998), we first selected a subset of schools that matched the primarily European American ethnicity and higher SES of the Montessori middle school students.

Six of the 20 middle schools in the sample satisfied these demographic matching criteria. These middle schools included approximately 160 students (55 % female, 45 % male); about 150 students provided valid ESM information (see Measures). European Americans comprised 74.9 % of the sample, 7.8 % were Asian Americans, 12.6 % were African American, 3.6 % were Latino, and 1.2 % of students were from other ethnic backgrounds. To confirm that the two samples were similar and allowed a fair comparison of schools that was not confounded by community, familial, or individual differences, we compared the samples on numerous background variables based on items from the National Education Longitudinal Study of 1988 (NELS: 88) (National Center for Education Statistics 1994, 1997). Results showed that students from both sets of schools were similar in terms of the size of families, ethnic diversity, two-parent homes, resources at home, parental education, discussion at home about school-related issues, parental monitoring of school activities, and parental rates of employment (Rathunde and Csikszentmihalyi 2005).

After verifying that the demographic profile of the two sets of schools was similar, the next step was to determine if the schools differed with respect to the five selection criteria outlined above. We used a variety of qualitative sources to verify contextual differences, including observations by the research staff; teacher and parent interviews; school newsletters, information packets, mission statements, and parent–teacher handbooks; summaries from board of education and school council meetings; and a review of class schedules and textbook choices discussed in strategic plans. These sources also provided information about the level of middle grade reform that may or may not have been implemented by the schools and whether the label "traditional" was appropriate.

The profile of the traditional middle schools that emerged from these materials was, in most ways, a very positive one. Consistent with the higher SES of the communities, the selected schools were modern, attractive, and had excellent resources to offer a full range of educational and extracurricular activities; all of them had relatively small class sizes and excellent teacher–student ratios (e.g., average teacher–student ratio for five of the six schools was 15:1; no size information was available for one school, but ethnographic descriptions confirmed that the sixth- and eighth-grade classes were divided into "small sections"). Furthermore, two of the Midwestern school districts participating in the study (five of the six schools) were in the beginning phases of participation with the U.S. Department of Education in the study of middle grades reform. School committees were being formed to discuss the major dimensions of reform.

Despite the movement toward reform, however, the fact that these schools were in the initial phases of discussion supported our decision to label them as traditional. Research has shown that several years of implementation are needed before a school reaches a "mature" level of reform implementation and organizational

changes become institutionalized (Felner et al. 1997). That the schools still operated in a traditional fashion was confirmed by some of the teachers' comments about the curriculum. For example, one teacher explained how a new math curriculum was being planned where "kids will no longer be doing just math work sheets and computations" and teachers would rely less on "drill and kill" methods. In other words, the fact that a new, hands-on approach was still in the planning stages for math and other areas of study suggested that instruction at the schools could reliably be called traditional.

The traditional schools also differed with respect to the five selection criteria that characterized the Montessori schools. First, although they encouraged student initiative in student handbooks and school mission statements, none of the traditional schools emphasized intrinsic motivation as a guiding principle for education. Second, the traditional schools followed block schedules of 45–50-min class periods, interspersed with time for lunch and homeroom, and did not provide elongated periods of time for student self-direction. Third, the traditional schools provided feedback to students through report cards and grades, and standardized tests were used to provide benchmarks for student progress and validation for student placements in groups. Fourth, the traditional students did not have formalized opportunities (e.g., councils or leadership groups) for participating in daily decision making. Finally, rather than minimizing lecture formats for the presentation of material, several of the student handbooks from the traditional schools emphasized the skills of attentive listening and note-taking during lectures. This fact corresponded to the teacher comments (summarized above) about the current orientation of instruction.

In summary, the two groups of schools being compared were remarkably similar with respect to the relatively advantaged demographic profile of their students and families. In addition, teachers and administrators in the traditional middle schools had an active orientation and desire to continually improve their schools. However, the traditional schools had not yet embarked on their plans of reform, and their contexts differed from the Montessori contexts in several key ways that would presumably affect student time use and social experience.

Data Collection

Montessori schools. Preliminary information explaining the research project was mailed to the schools and distributed by the teachers. A meeting was set up at the schools for students who agreed to participate (over 95 %). Members of the research team explained the study, distributed questionnaires, and provided the materials for the Experience Sampling Method (ESM) (i.e., students were given watches that were programmed to signal the students approximately eight times per day between the hours of 7:30 a.m. and 10:30 p.m. for 7 consecutive days; see Csikszentmihalyi and Larson 1987). During this meeting, students were instructed on how to respond to the signals (i.e., by filling out a short response form), and

they had a chance to practice filling out the ESM forms. Students were informed that a member of the research team would give them a background questionnaire to be completed during a designated class period later in the week. Students were also given a questionnaire to bring home to their parents, along with a pre-addressed, stamped envelope that parents could use to return their questionnaires. At the end of the week students returned their ESM materials in a brown paper envelope.

Traditional middle schools. Data collection at the traditional middle schools occurred several years before data collection at the Montessori schools (see Csikszentmihlayi and Schneider 2000). Approximately 86 % of the target sample of students across the six schools participated in the study. The main data collection procedures (described above) were replicated across the two studies. The ESM student orientation meeting, the timing schedule of the daily signals, and the formatting of questions on the ESM forms and the background questionnaires were the same in the two studies.

Measures

Students' perceptions of their schools and teachers. The school/teacher measure was based on a 15-item scale (1 = strongly disagree to 4 = strongly agree) from the National Education Longitudinal Study of 1988 (NELS: 88) (National Center for Education Statistics 1994, 1997). Principal components analysis of the items (varimax rotation) revealed four factors with eight values greater than 1 accounting for 55 % of the total variance. The *support* scale contained seven items (e.g., Students get along well with teachers; Teachers are interested in students; Most of my teachers really listen to what I have to say; Cronbach's alpha = 0.87); the *order* scale contained three items (e.g., Other students often disrupt class (reverse coded); Disruptions by other students get in the way of my learning (reverse coded); alpha = 0.55); the *safety* scale contained three items (e.g., In class I often feel "put down" by my teachers (reverse coded); In school I often feel "put down" by other students (reverse coded); alpha = 0.54); finally, the *fairness* scale contained two items (e.g., Rules for behavior are strict; Students make friends with students of other racial and ethnic groups; alpha = 0.22). Because of the low alpha for the latter scale, it was dropped from further analysis.

Time use at school. All of the ESM measures used in this study were measures of student time use at school. Two items on the ESM response form were used to select the signals for analysis: Where were you as you were beeped? What was the main thing you were doing? First, all of the signals for times when students were at school were selected (approximately 4,000 total signals). Then, the "What were you doing?" The variable was used to sort signals into seven basic categories: academic work (approximately 60 % of school signals), extracurricular (3 %), chores (2 %), socializing (8 %), leisure/games (5 %), TV/media (1 %), and eating/maintenance (22 %). These summary categories were based on a more detailed

coding of each ESM signal that occurred at school. For example, academic work included all activities where students responded that they were listening to a teacher, participating in a discussion, doing work related to a particular subject (e.g., math, English), working on homework, taking a test, and so on; extracurricular activities included signals in various after-school pursuits (e.g., music, art); chores included signals capturing school jobs (e.g., cleaning a floor); socializing included talking with a friend or classmate, hanging out, and so on; leisure/games included playing a game, using the computer for fun, various diversions, and so on; TV/media captured times watching videos or other programs; finally, eating/maintenance was a fairly large category that included signals capturing eating lunch or a snack, walking in the halls, looking for something, and so on.

All of the time comparisons reported were based on aggregated measures. First, we used each student's set of signals to create percentages within the activity categories (e.g., if a student responded to 20 ESM signals while at school, 10 doing academic work, 5 socializing, and 5 eating/maintenance, that student would have 50 % academic, 25 % socializing, 25 % eating/maintenance, and 0 % in the remaining four categories). For time-use comparisons between the Montessori and traditional samples, these individual percentages were aggregated to reveal overall group percentages in each category. As is conventional in ESM studies (see Csikszentmihalyi and Larson 1984), only students who responded to at least 15 signals for the week were included in the analyses.

Classroom activities. A subsection of the codes for academic work dealt with classroom activities; these codes provided an opportunity to compare the two samples on classroom instructional practices. In addition to an "unspecified" category for times when students responded generally to the "What were you doing?" question (e.g., "working in class" or "taking a test"), 12 additional codes provided detail about classroom instruction. We recoded these 12 categories into four different instructional practices: *passive listening* (i.e., listening to a lecture, listening and taking notes, listening to a discussion); *collaborative work* (i.e., participating in a discussion, lab work in a group, group work/activity, group presentation, and talking to the teacher); *individual work* (i.e., individual lab work, individual work/activity, solo presentation); and *media* (i.e., watching TV, film, or video). After selecting this group of detailed classroom signals, we calculated percentage variables for each student. For example, if a student responded to four signals while doing classroom activities, and one fell in each of the four categories, the corresponding percentage would equal 25.

These percentage variables are less reliable than the overall school activity codes because they are based on a smaller number of signals. In addition, these codes depended on the detail voluntarily provided by students; if students responded with a general phrase (e.g., "in class") and did not specify what they were doing, we could not code it in one of the more detailed classroom practice categories. However, all students had an equal chance to report what they were doing, and both samples received the same instructions for responding to the ESM; therefore, these measures provided useful information about classroom practices.

Time with friends, classmates, teachers, and alone. In addition to the various activity/time estimates, we also used the ESM responses to estimate the amount of time students spent with others while academically engaged at school. In other words, for each signal received when working at school, a student filled out a section entitled "Who were you with?" Students placed a check in one or more of 10 boxes to indicate who they were with when they received the ESM signal: alone, mother, father, sister/brother, relatives, teacher(s), classmates/peers, friends, strangers, others. Because the study focused on time in school, only four categories were of interest: alone, teacher(s), classmates/peers, and friends. Aggregating the ESM signals produced a percentage score for each student describing whom the student was with (e.g., if a student responded to 20 signals at school, and indicated she was with a teacher 15 times, time with teacher would equal 75 %). We used the same approach to compute time spent alone, with classmates/peers, and with friends.

Classmates and friends. The students' ESM responses were used to provide an indirect measure of how students felt about their classmates. Because students were instructed to check multiple boxes to indicate whom they were with, in addition to the singular choices of "classmates/peers" or "friends," students were free to indicate the combined choice of classmates/peers *and* friends if that was how they perceived the social environment. Three categories (i.e., classmates [only], friends [only], and class-mates-and-friends) were used in this study as indicators of how the students perceived their working environment. In other words, as students were working in class, doing homework, and so on, did they perceive others around them as simply classmates, or also as friends? If a student responded to 10 signals while engaged in academic work, and four signals indicated with classmates, two with friends, and four with classmates and friends, the corresponding percentages would equal, 40, 20, and 40, respectively.

Background variables. Previous research has demonstrated that gender, family SES, and ethnicity can affect student experience at school (Finn 1993; Gentry et al. 2002; Lee and Smith 1993; Marks 2000). Therefore, we used these three variables as covariates in all of the multivariate analyses (see Analysis Plan). Gender and ethnic background were based on single items from the student questionnaires. Ethnicity was collapsed into two categories—European American and minority (i.e., all other ethnicities combined). Parental education was computed from students' responses about how far their parents went in school (1 = did not finish high school, 2 = graduated from high school, 3 = attended 2-year college, 4 = went to college (did not complete degree), 5 = graduated from college, 6 = master's degree or equivalent, 7 = Ph.D., M.D., or other professional degree). Over 80 % of the families in both samples were intact with mothers and fathers living at home. Therefore, parental education was computed as the average of mother and father education. For the small number of students (less than 10 %) who did not supply information about either parent, parental education was computed based on responses from parental questionnaires (when available) or census track information (i.e., estimates based on average education for parents living in a similar community).

Analysis Plan

The main analyses used two-way multivariate analysis of covariance (MANCOVA) with school type (Montessori vs. traditional) and grade level (sixth vs. eighth) as the two factors. Gender, ethnicity, and parental education were covariates in all of the analyses. Overall multivariate F tests (Wilks's lambda) were performed first on related sets of dependent variables. If an overall F test was significant, we performed univariate ANOVAs as follow-up tests to the MANCOVAs. If necessary, post hoc analyses were done using Bonferroni corrections to control for Type I errors. Only students with at least 15 ESM signals were included in the multivariate analyses, and follow-up ANOVAs used students who had valid scores on all of the dependent variables.

The main analyses explored what students were doing at school, who they were spending time with, and how they perceived their schools, teachers, and classmates. We hypothesized that students in Montessori middle schools would report more positive perceptions of their school environment and their teachers, more often perceive their classmates as friends, and spend more time in collaborative and/or individual work rather than didactic educational formats such as listening to a lecture. We made no predictions with regard to sixth- or eighth-grade students or the interaction between type of school context and grade level.

Results

Students' Perceptions of Their Schools and Teachers

The first analysis compared students' reports about the support, order, and safety they perceived at their schools. These three variables were compared across school type (Montessori vs. traditional) and grade level (sixth vs. eighth) using a 2×2 MANCOVA with parental education, gender, and ethnic background as covariates. Significant differences were found for school context, Wilks's lambda $= 0.77$, $F(3, 232) = 23.73$, $p < 0.001$, indicating that students in the two school contexts reported different perceptions of support, order, and safety. After adjusting for the covariates, the multivariate eta squared indicated that 24 % of the variance of the dependent variables was associated with the school context factor. The omnibus test for grade level was not significant, Wilks's lambda $= 0.99$, $F(3, 232) = 1.08$, $p = 0.36$, indicating that students in sixth and eighth grade reported similar perceptions of their school contexts. Finally, the omnibus test for the interaction of school context and grade level was not significant, Wilks's lambda $= 0.98$, $F(3, 232) = 1.57$, $p = 0.20$. None of the multivariate tests for parental education, gender, or ethnic background reached the 0.05 significance level.

Based on the multivariate findings, we performed follow-up ANCOVAs on the three school variables. Only the findings for school context are reported here

Table 9.1 Univariate *F* tests for students' perceptions of their schools and teachers

Classroom measure	School context					
	Montessori ($N = 125$)		Traditional ($N = 116$)			
	M	*SE*	*M*	*SE*	*F*	*p*
Teacher support	3.2	0.05	2.7	0.05	62.01	0.000
Classroom order	3.7	0.06	3.3	0.06	23.28	0.000
Emotional safety	4.3	0.05	4.1	0.05	7.48	0.007

Note Means are adjusted for the covariates gender, parental education, and ethnicity

because of the significant omnibus test in the MANCOVA. Table 9.1 summarizes the means, standard errors, and significance levels for each of the variables. Results showed all of the school variables were significantly different for the two school contexts. Montessori students reported more support from teachers (i.e., teachers were interested in students, they listened to what they had to say, etc.), more order in the classroom (i.e., fewer disruptions from students), and a greater feeling of emotional/psychological safety (i.e., not being put down by teachers or students).

Time Use at School and Classroom Activities

A second MANCOVA was used to assess time use at school using the seven activity estimates: academic work, extracurricular, chores, socializing, leisure/games, TV/media, and eating/maintenance. Results showed a significant difference for school context, Wilks's lambda = 0.72, $F(6, 289) = 18.77$, $p < 0.001$, indicating that students in the two school contexts reported differences in how their time was used. After adjusting for the covariates, the multivariate eta squared indicated that 28 % of the variance of the dependent variables was associated with the school context factor. The omnibus test for grade level was not significant, Wilks's lambda = 0.99, $F(6, 289) = 0.72$, $p = 0.64$, nor was the omnibus test for the interaction of school context and grade level, Wilks's lambda = 0.98, $F(6, 289) = 1.15$, $p = 0.33$. Finally, none of the multivariate tests for parental education, gender, or ethnic background reached the 0.05 significance level.

Results of the follow-up ANCOVAs for school context are summarized in Table 9.2. Students in the Montessori and traditional schools reported significant differences in five of the seven time-use categories. We found no differences for extracurricular activities, and a near-significant difference ($p < 0.06$) for maintenance activities (traditional students reported more time doing such activities). Montessori students engaged in higher percentages of academic work and chores; traditional students spent more time socializing, engaged in leisure activities, and watching TV or other media.

The academic work category was subdivided to compare the classroom practices students reported. Time percentages were computed for four instructional

Table 9.2 Univariate *F* tests for time use at school, by school context

ESM time estimate	School context					
	Montessori ($N = 143$)		Traditional ($N = 158$)			
	M	*SE*	*M*	*SE*	*F*	*p*
Academic work	65.3	1.5	52.6	1.4	38.94	0.000
Extracurricular	3.4	0.5	2.4	0.5	1.93	0.17
Chores	2.1	0.3	0.5	0.2	13.52	0.000
Socializing	6.3	0.9	10.1	0.9	8.82	0.003
Leisure/games	2.0	0.7	9.0	0.7	53.11	0.000
TV/media	0.2	0.2	1.2	0.2	10.76	0.001
Maintenance/eating	20.8	1.3	24.3	1.2	3.66	0.057

Note Means are percentages adjusted for the covariates gender, parental education, and ethnicity

practices: passive listening, collaborative work, individual work, and watching media. The MANCOVA for this set of variables resulted in a significant effect for school context, Wilks's lambda = 0.81, $F(3, 238) = 19.14$, $p < 0.001$, indicating that students in the two school contexts reported differences in the instructional practices in their classrooms. After adjusting for the covariates, the multivariate eta squared indicated that 19 % of the variance was associated with the school context factor. The omnibus test for grade level was also significant, Wilks's lambda = 0.85, $F(3, 238) = 14.07$, $p < 0.001$; that is, sixth and eighth graders reported differences in classroom activities (15 % of the variance). Finally, the omnibus test for the interaction of school context and grade level was not significant, Wilks's lambda = 0.98, $F(3, 238) = 1.35$, $p = 0.26$, nor were the multivariate tests for the covariates.

We performed follow-up ANCOVAs on the classroom variables. Based on the significant multivariate findings, we only report results for school context and grade here. Results of the ANCOVAs are summarized in Table 9.3. For the times when students reported enough detail on the ESM for us to code their activities into categories of classroom practices, the Montessori students reported less time in passive listening (i.e., lecture and note-taking) activities, more time in collaborative or group work, more time working on individual projects, and less time watching media. Instructional practices also differed in the sixth and eighth grades. Students in sixth grade spent less time listening to lectures, more time working on individual projects, and less times watching media.

Time with Friends, Classmates, Teachers, and Alone

The next MANCOVA assessed the set of ESM variables measuring who the students were with while productively engaged at school: time with friends, classmates, teachers, and alone. Results of the MANCOVA showed significant differences for

Table 9.3 Univariate *F* tests for classroom practices, by school context and grade

Classroom practice	M	SE	F	p
Passive listening				
Montessori	24.4	3.1	16.37	0.000
Traditional	41.7	3.0		
Sixth graders	25.5	2.8	12.64	0.000
Eighth graders	40.7	3.2		
Collaborative work				
Montessori	32.1	2.8	23.78	0.000
Traditional	13.0	2.7		
Sixth graders	23.5	2.6	0.24	0.63
Eighth graders	21.6	2.9		
Individual work				
Montessori	37.6	3.1	7.83	0.006
Traditional	25.6	3.0		
Sixth graders	43.4	2.8	30.23	0.000
Eighth graders	19.8	3.2		
Watching media				
Montessori	5.9	2.2	19.33	0.000
Traditional	19.7	2.2		
Sixth graders	7.7	2.0	10.80	0.001
Eighth graders	17.9	2.3		

Note Means are percentages adjusted for the covariates gender, parental education, and ethnicity. The percentages do not reflect all classroom activities, only the times when students reported classroom activities in some detail (i.e., many classroom activities were "unspecified")

the school context factor, Wilks's lambda = 0.72, $F(4, 288) = 28.21$, $p < 0.001$, indicating that students in the two types of schools reported differences in who they were with while doing academic work. After adjusting for the covariates, the multivariate eta squared indicated that 28 % of the variance was associated with the school context factor. The omnibus test for grade level was not significant, Wilks's lambda = 0.97, $F(4, 288) = 0.31$, $p = 0.87$, and neither was the omnibus test for the interaction of school context and grade, Wilks's lambda = 0.97, $F(4, 288) = 1.92$, $p = 0.10$. Finally, the omnibus test for ethnicity was significant (Wilks's lambda = 0.96, $F(4, 288) = 2.97$, $p = 0.02$), and so was the multivariate F for parental education (Wilks's lambda = 0.94, $F(4, 288) = 4.49$, $p = 0.002$). There was no effect for gender.

Based on the multivariate findings, we performed follow-up ANCOVAs on the variables for time with friends, classmates, teachers, and time alone. Only the findings for school context, ethnicity, and parental education are reported here due to the significant multivariate results associated with these variables. Results of the ANCOVAs showed that students in the two school contexts reported differences in three of four categories. Table 9.4 summarizes the means, standard errors, and significance levels for each variable. Montessori students spent more time with teachers, friends, and alone; students in both contexts reported spending the same amount of time with classmates. With respect to the background variables, the

Table 9.4 Univariate *F* tests for time with others while academically engaged at school, by school context

ESM estimate	School context					
	Montessori ($N = 143$)		Traditional ($N = 155$)			
	M	*SE*	*M*	*SE*	*F*	*p*
With teacher	71.7	2.7	61.0	2.6	7.99	0.005
With classmates	84.9	1.8	87.4	1.7	1.07	0.30
With friends	75.9	2.8	40.0	2.7	82.57	0.000
Alone	3.7	0.6	1.1	0.6	9.36	0.002

Note Means are percentages adjusted for the covariates gender, parental education, and ethnicity

results of the ANCOVAs showed that minority students reported spending less time with teachers ($F(1, 291) = 10.17$, $p = 0.002$), and students of more highly educated parents reported spending more time with classmates ($F(1, 291) = 15.80$, $p < 0.001$).

The ESM estimates for students' time with others reflected social perceptions as well as factual reporting of who was around when students received the ESM signal (e.g., a student's report that she was "with" a teacher could have indicated that she was aware of his or her presence, even though the teacher may have been across the room). In addition, students were free to choose more than one category (e.g., one can be with classmates *and* with friends). We used this subjective aspect of the measures in a follow-up MANCOVA that looked more closely at the large differences students reported with respect to time with friends. We entered three variables into a second MANCOVA: time with classmates *and* friends, time with classmates (not friends), and time with friends (not classmates). Results of the MANCOVA showed significant differences for the school context factor, Wilks's lambda = 0.75, $F(2,290) = 49.42$, $p < 0.001$, indicating that students in the two types of schools reported differences in their perceptions of friends and classmates.

After adjusting for the covariates, we found that the multivariate eta squared indicated that 25 % of the variance for the three variables was associated with the school context factor. The omnibus test for grade level was not significant, Wilks's lambda = 0.997, $F(2, 290) = 0.48$, $p = 0.62$, and the omnibus test for the interaction of school context and grade was nearly significant, Wilks's lambda = 0.98, $F(2, 290) = 2.56$, $p = 0.08$. Finally, the multivariate test for parental education was significant (Wilks's lambda = 0.95, $F(2, 290) = 7.29$, $p = 0.001$). There were no significant effects for gender or ethnicity.

Follow-up ANCOVAs were performed on the friend-and-classmate, only-classmate, and only-friend time percentages. Based on the multivariate findings, only the results for school context, the interaction of context and grade, and parental education are reported here. Results of the ANCOVAs showed that students in the two school contexts reported differences in two of the three categories. Montessori students more often reported being with classmates and friends ($F(1, 291) = 87.67$, $p < 0.001$, Montessori M = 70.9 %, $SE = 3.0$; traditional $M = 32.1$ %, $SE = 2.8$). Traditional students more often reported being with

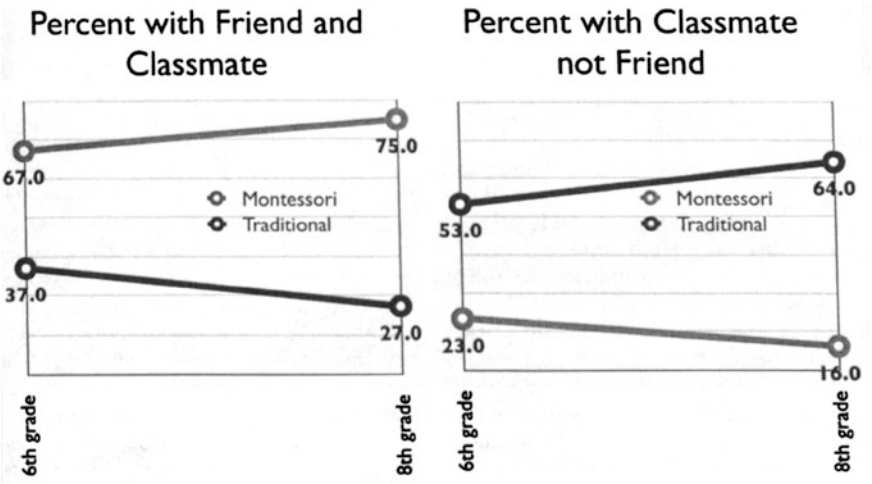

Fig. 9.1 Percentage of time with friends and classmates, and classmates not friends, by grade and school context

classmates only (F(l, 291) = 94.82, $p < 0.001$, Montessori $M = 19.4$ %, $SE = 2.9$; traditional $M = 58.5$ %, $SE = 2.8$). There were no differences with respect to time with friends only (F(1, 291) = 0.03, $p = 0.86$, Montessori $M = 9.7$ %, $SE = 1.6$; traditional $M = 9.3$ %, $SE = 1.6$). The ANCOVAs for the interaction between school context and grade were significant for classmates and friends, F(1, 291) = 4.61, $p = 0.03$, and for classmates not friends, F(1, 291) = 4.87, $p = 0.03$. These patterns are illustrated in Fig. 9.1. There was no interaction of context and grade for the friends-only variable, F(l, 291) = 0.0, $p = 0.99$. Both interactions indicated a trend from sixth to eighth grade: Montessori students were more likely in eighth grade to see their classmates as friends, and traditional students were more likely by eighth grade to perceive their peers as classmates and not friends.

Discussion

Early adolescence is a crucial developmental period that can influence students' future attitudes about school and their orientation toward lifelong learning (Csikszentmihalyi and Schneider 2000; Sternberg 2001). Unfortunately, research has shown negative changes in the social context of middle schools: teachers can become more distant and narrowly focused on student achievement (Brophy 1998; Feldlaufer et al. 1988; Wentzel 1998); students have a more difficult time interacting with their classmates and friends (Eccles et al. 1991; Felner et al. 1997; Hicks 1997; Stipek 1998); and academic work often takes a turn toward drudgery

with a strong dose of seat-work and lecture (Guthrie and Davis 2003; Hickey 1997; Mac Iver et al. 2002). In the present study we compared the social contexts of five Montessori and six traditional middle schools. Montessori students reported more favorable impressions of their schools and teachers. In addition, time-use estimates suggested that the Montessori students spent more time on academic tasks, had more positive perceptions of classmates, and spent more time in active learning pursuits.

Improving the Social Context of Middle School

Although the Montessori philosophy is known primarily for early childhood education, Maria Montessori also wrote about the education of adolescents. Like Erik Erikson and many other commentators, Montessori (1976) thought that what distinguished adolescence was the exploration of the self in the context of others. She commented (cited in Standing 1984, p. 116): "There is born within him a new 'sensitive period' which reveals itself in a greatly increased sensitiveness to all facts and experiences which related to his life as a social being." Because the adolescent was becoming a "socially conscious individual," educational contexts needed to accommodate this developmentally appropriate change. Montessori thought that many high schools treated adolescents "like babies" in that students were tied all day to the classroom and directed to pay attention to good or bad marks in class; she believed that social adjustment, not simply the passing of examinations, should be a focus when educating adolescents (Montessori 1976). In practical terms, this meant supporting the need for adolescents to explore their interests independently and actively in a supportive, collaborative community.

Several of the results from the study suggest the Montessori middle schools were more successful than the traditional schools in creating such a community. At the broadest level, Montessori students perceived their schools and teachers as more supportive of their individual interests. Classrooms were seen as more orderly and operating with more respect for the concentration and work of other students. Also of great importance, the Montessori students felt safe from the put-downs of teachers and other students. Adolescents often experience increased self-consciousness and a drop in confidence due to the increased public evaluation that occurs in many middle schools (Covington 1992; Eccles et al. 1993). Feeling safe from being put down, therefore, is an important component of a school culture that supports students' risk-taking and active exploration (Brophy 1998).

Perceiving teachers as supportive is crucial for students' motivation and achievement (Fraser and Fisher 1982; Goodenow 1993; Harter 1996; Wentzel 1998, 2002). The influence of teachers, however, also operates in how they structure the environment (i.e., the goals they emphasize and the activities they select) (Ames and Ames 1984; Brown 1997; Grolnick and Ryan 1987; Skinner and Belmont 1993). We hypothesized that the Montessori schools would be structured

differently than the traditional schools, and students would be engaged in different kinds of activities.

The ESM time estimates confirmed that the structure of activities in Montessori and traditional schools was indeed different. Montessori students spent more time doing academic work and chores; the traditional students spent more time socializing, engaging in leisure activities, and watching TV or other media. That the Montessori students reported doing more chores is not surprising; participating in classroom maintenance is a long-established Montessori tradition. However, that they reported doing more academic activities and fewer non-academic activities (i.e., socializing, leisure, and media) was unexpected. In other words, we predicted that the kinds of activities would be different, not that the overall balance of academic work and "downtime" would be different. Perhaps the traditional students, because they were in more structured environments that clearly delineated what was and was not academic work, were more able or more willing to report the times they were not on task. However, an explanation more consistent with the other motivation and time-use findings in the study is that the Montessori students were more often engaged in their school tasks and, therefore, less distracted by other opportunities to act (e.g., talking with friends).

Spending less time socializing did not mean that the Montessori students spent less time interacting and collaborating with friends. On the contrary, the breakdown of classroom activities demonstrated that, for those times when clear differentiations could be made with respect to classroom practices, the Montessori students reported spending less time in passive listening (e.g., lecture and note-taking) and more time working with others on projects. Other researchers have found that such active and collaborative tasks, in contrast to activities such as watching educational videos, are more enjoyable and motivating (Freeman et al. 2002; Hickey 1997; Nichols and Miller 1994; Singer et al. 2000).

The stereotype of a Montessori classroom, at least in early childhood, is that children pursue individual activities at the expense of working in groups (Santrock 1999). The finding that the Montessori students spent more time working in groups, therefore, might seem surprising. However, Maria Montessori stressed that, in adolescence, exploring the self in the context of others was crucial. Although the Montessori students also reported spending more time alone and doing more individual work, they also had ample unstructured time to collaborate with their peers. The overall results suggested that the time the Montessori students "saved" by spending less time listening to lectures or watching videos was invested in more individual *and* group work. It is worth noting, however, that these measures of classroom activities were based on a limited number of signals and on voluntary student reporting (i.e., specificity about their school activities). Therefore, they are less reliable than other measures in the study. In future ESM work, such shortcomings might be addressed by including specific questions about classroom practices on the ESM form.

The last set of findings supports those on collaborative work and further illustrates a key difference in the social contexts of the Montessori and traditional schools. The Montessori students more often reported being with friends and were

more likely to perceive their classmates as friends. Based on the amount of variance explained, these findings were the strongest in the study. One way to gauge the practical effects of these differences is to turn the time percentage measures into real-time estimates. For example, the ESM sampled about 23 h of academic work (i.e., 62 % of about 37.5 total hours sampled at school was school related). This means that the 40 % difference reported by the Montessori students in seeing classmates as friends (and, conversely, the 40 % difference reported by the traditional students in seeing classmates not as friends) represented about 9 h per week, or almost 2 h per day.

Given that successful peer interaction at school has been associated with student engagement, useful cognitive strategies, problem solving, adjustment to school, academic achievement, and self-regulation (Berndt and Keefe 1995; Brown 1990; Dimant and Bearison 1991; McCaslin and Good 1996; Ryan and Patrick 2001; Wentzel 1998), spending 9 additional hours per week in the presence of friends is likely to be an advantage for the Montessori students. In fact, there was a small but significant positive correlation between time with friends while doing academic work and higher student grades for both of these samples of students, although only one-quarter of the Montessori students received grades. More research is needed to understand the relative importance of the peer context for student motivation and experience in comparison to the proven importance of parents and teachers (Eccles et al. 1998; Magnusson and Statin 1998; Ryan 2000, 2001); however, whatever the relative effect, perceiving classmates as friends is likely to be a positive and desirable outcome. Moreover, the significant interaction between school context and grade level for this variable suggests that Montessori students' perceptions of friends among classmates increased over time and grew stronger by eighth grade. In contrast, by the eighth grade the traditional students more often perceived their peers as classmates and not friends.

Limitations and Implications of the Study

The present study statistically controlled for SES, gender, and ethnic differences; in addition, we were careful to match the samples and verify that the students came from (a) families with similar levels of parental education, number of siblings, parental employment, incidence of divorce, home resources, and school-related parental discussion and involvement; and (b) schools that were similar with respect to available resources, small to moderate size, favorable teacher-student ratios, and strong communities. Nevertheless, there are inherent difficulties in conducting comparative school research (see Watson 2001), and it is impossible to control for all of the individual and contextual differences that make each school and student unique. Furthermore, the study is based on a limited sample, and care should be taken before generalizing the results to other schools.

Despite the fact that alternative explanations cannot be entirely ruled out, the consistency of the findings discussed here, along with the findings reported

elsewhere on the Montessori students' greater intrinsic motivation and quality of experience (Rathunde and Csikszentmihalyi 2005), provide convergent evidence that the Montessori and traditional middle school cultures were associated with different student outcomes. The most reasonable explanation of the positive findings associated with the Montessori schools appears to reside in the different policies and practices of these schools (e.g., an emphasis on intrinsic motivation, providing unstructured time without block period organization, no mandatory grading, and so on). Maehr and Midgley (1991, p. 404) have also reported negative student outcomes when "students are provided little choice concerning tasks, competition and social comparison are emphasized, ability grouping and tracking are used, public evaluation of performance and conduct are common, grading is based on relative ability, and cooperation and interaction among students is discouraged." The Montessori environments in this study did not fit this description; however, in comparison, the traditional school environments did.

Our findings should not be interpreted as blaming the public education system or promoting Montessori schools. No one pedagogy can lay claim to the social context ideas discussed in this study. Rather, the wider importance of the findings should be seen in relation to the widely documented problems of middle schools, the continuing drift of public schools toward transmission models of top-down education and standards-based testing, and the narrowing of perspective that increasingly equates intellectual skills with a thin set of cognitive skills that ignore affect and take the "body" out of the mind (Johnson 1987; Lakoff and Johnson 1999; Sternberg 2001). Given these circumstances, it becomes increasingly important to understand how characteristics of school contexts affect the quality of student experience.

One reason why the Montessori schools studies here may have been successful is that they were bolstered by a century-old philosophy of intrinsic motivation that laid the conceptual foundation for teacher training and set the tone for the school culture. Having such a foundation and supportive culture is likely to bolster a teacher's confidence in the importance of intrinsic motivation and the active learning disposition of children and adolescents. In contrast, many competing philosophies of education operate in public schools, and not all of them are attuned to student experience and motivation. Many public schools are also under external pressure to focus on student achievement and test scores. Under these conditions, administrators and teachers may be less ready to trust an adolescent's intrinsic motivation to learn. Adding to this hesitancy is the unfortunate fact that approaches that emphasize intrinsic motivation are perceived by some to be "easy," laissez-faire forms of education that promote student "fun." The contemporary focus on raising student test scores is therefore presented as a more sober and realistic alternative for school improvement that emphasizes students' concentration and hard work.

It is a misunderstanding, however, to think that school contexts designed to facilitate intrinsic motivation are permissive, just as it is a mistake to think that schools that emphasize student achievement must be authoritarian. Maria Montessori, for example, was clear on the point that education contexts should

contain the combination of freedom and discipline, not student freedom at any cost (Standing 1984). It is precisely this kind of multifaceted or complex social context that facilitates deeply engaging experiences that unite immediate enjoyment with concentrated work (Rathunde and Csikszentmihalyi 2006). Seeing beyond the false dichotomies that often come up in discussions of school improvement may allow a wider adoption of some of the reform ideas discussed in this study and elsewhere in the education literature. Such reforms, in turn, could improve the social context in middle school and enhance student engagement.

Note

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Chapter 10
Do Students Care About Learning?

A Conversation with Mihaly Csikszentmihalyi

Learning to enjoy the intrinsic rewards of hard work is essential to successful human development, Mihaly Csikszentmihalyi, author of Becoming Adult: How Teenagers Prepare for the World of Work, tells us. Here he talks with Educational Leadership about how to help students seek out the challenging and engaging activities that will propel them on their way toward becoming productive adults.

Marge Scherer

In your study, you identified students who stood out from the crowd because they, more than their peers, could find enjoyment in both work and play. You also found students who were disengaged and passive about most of the activities they participated in. What was the context of your longitudinal study?

With the help from a grant from the Alfred P. Sloan Foundation, we identified 1,000 children who were in 6th, 8th, 10th, and 12th grades in 12 school districts from Orlando, Florida, to Long Beach, California, and everywhere in between. Nine years later, we are still following some of the participants as young adults, although a much smaller group of them.

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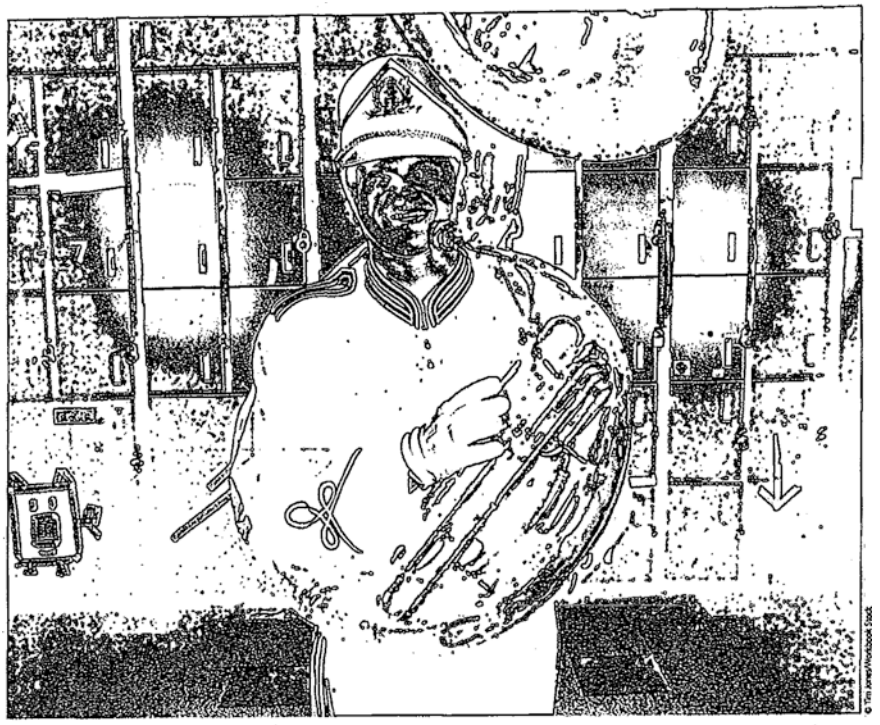
We selected students randomly. We were not looking for children who enjoyed school or did not enjoy school. We just tried to get as much of a cross-section as possible. We developed questionnaires and interviewed these students, but we obtained most of our data through giving each student a programmable pager for a week. The pager would go off eight times a day, early morning to 11 p.m., at random moments. Whenever the pager signaled, the students would take out a little booklet and write where they were, what they were doing, what they were thinking about, their level of concentration, how happy they were, and how creative they felt when doing different activities.

They reported about 30 times during the week, so we received about 30,000 reports. And that allowed us to begin to see these children's experiences, the feelings and thoughts they had during the day, both at school and out of school. For instance, every time the pager went off, they had to say whether what they were doing was more like play, more like work, or like neither work nor play.

Was life more like work or play for these teenagers?

About 30 % of the time they stated that it was like work; 30 % of the time, they said that what they were doing was like play; 30 % neither; and they reported that for 10 % of their time, what they were doing was like both work and play.

In your follow-up studies, you concluded that students who often say that what they are doing is like both work and play are more likely to go on to college or make a successful transition to work.



It's when they are participating in extracurricular activities that students most often say that they are both working and playing.

Those students who say that whatever they do is more like work seem to do well in high school. Although they say that what they are doing is work and they don't enjoy it at the moment, they record on the response sheet that the activity is important to their future. So they understand that, "Okay. This is work. It's not pleasant. But it will profit me in the future."

Those kids who say that what they do is mostly play enjoy their activities, but they don't think of them as being important for the future. But the best situation is when a person sees a life activity as both work and play. Unfortunately, only about 10 % of the time do students report this experience. *Some* kids never report that they have this experience. The worst thing is to frequently feel that what you do is neither enjoyable right now nor good preparation for the future.

Yon says that affluent students are more likely to say they are enjoying their activities more than poorer students. Did you see any differences in attitudes among other groups of students?

Males much more than females say that what they do is play. Caucasian students play more than Asians, Hispanics, or African Americans. The survey has a lot of markers in terms of ethnicity, class, and gender. We found that those who see what they do as play get into better colleges after they leave high school. College selection procedures favor kids who do well academically but who also are engaged in original or interesting extracurricular activities.

It's when they are participating in extracurricular activities that students most often say that they are both working and playing.

What is it about extracurricular activities that makes them engaging to students?

Students say that they are doing something that is important to them. The activity is voluntary to a large extent. Kids can choose to do things that match their own interests and skills. So they are doing something fun. But at the same time they are doing work to adult specifications. If you work on the high school newspaper, you have to observe the deadlines and you produce something that is real.

Our youngest son, for instance, was uninterested in school until he began to hang out with the theater group and started building sets, doing the lighting and sound effects, painting the scenery, doing carpentry, and so forth. Once he did that, he became more able to focus on everything. And now he's teaching at MIT.

His academic classes did not offer him an opportunity to meet serious adult standards, but the extracurricular activity did.

Explain what you mean by the flow experience, the title of your earlier book.

Flow describes the spontaneous, effortless experience you achieve when you have a close match between a high level of challenge and the skills you need to meet the challenge. Flow happens when a person is completely involved in the task, is concentrating very deeply, and knows moment by moment what the next steps should be. If you're playing music, you know what note will come next, and you know how to play that note. You have a goal and you are getting feedback. The experience is almost addictive and very rewarding.

Small children are in flow most of the time as they learn to walk and talk and other new things. They choose what to do and they match their skills with challenges. Unfortunately, they begin to lose this feeling once they go to school because they can't choose their goals and they can't choose the level at which they operate, They become increasingly passive. We find that in Europe and the United States, about 15 % of adults really can't remember any experience that seems like flow. A similar proportion, about 15 %, claim that they have the flow experience several times a day.

We've published many articles on multiple intelligences and learning styles. Do you think people of a certain kind of intelligence are more likely to have the flow experience?

It depends on whether there are opportunities for your particular skill or intelligence. If you are musically inclined, for instance, and there is no opportunity to play music at your school and no other place to get the experience of playing, then you are at a disadvantage. In some cultures, there will be opportunities for one kind of intelligence more than for another.

The learning disability that may be an obstacle to experiencing flow is the inability to concentrate. Concentration is one of the hallmarks of the flow experience. If you have, for instance, an attention deficit, it may be difficult to get focused enough.

Have you found that any curriculum subjects lend themselves to more engagement than others?

Yes. There have been quite a few dissertations on this topic. Typically, students rate history the worst subject for engagement, whereas they rate anything having to do with computers high. And vocational subjects seem to be better than academic subjects for encouraging engagement.

Students get flow from group work, from individual tasks, and from quizzes much more often than they do from listening to the teacher or from watching audiovisuals.

Flow describes the spontaneous, effortless experience you achieve when you have a close match between a high *level of* challenge and the skills to meet the challenge.

We're in a testing culture now, with much emphasis on standards and high-stakes assessments. Is this new priority deflating students' love of learning, or is it beneficial because it offers challenges?

To the extent that the results of the tests are taken seriously, testing worries me. If a test is fair and not above the heads of most of the kids, then students can take the test as a game and a challenge. Flow is easiest to experience when you are challenged, have clear goals, and get clear feedback. Now, if you're listening to a teacher, all of those things are missing. There's nothing to keep your attention focused. Whereas in a test, you have to pay attention. There is a challenge. The goals are clear. You can lose yourself in the activity. Unless it's way too difficult or way too easy, you can enjoy taking a test. But that doesn't mean that one should take any test very seriously because test results don't correlate much with anything.

Not with higher achievement or success in life?

Not that I know of. I would be interested in seeing the evidence that scores on tests correlate with happiness or success in life.

What recommendations do you have for teachers who want to structure instructional activities to achieve more flow or more engagement for students?

The more they can show the relevance of what they're doing to the life of the student, the better. That's the first and most obvious requirement. You also have to make clear the goal of every lesson. The student must know what he or she is supposed to achieve at the end. And teachers need a way to find out how well the students are learning. Computer-assisted teaching can be quite useful because there you can see your progress and you can change and correct your work as you move along. The fact that students feel positive about group activities suggests the need for more group work. There's too little group activity in high school except in science labs where two or three kids have to solve a problem or learn something together. There are many things that adults could do to make learning more engaging to students.

On the other hand, sometimes it seems to me that the best thing would be to forbid children to go to school until they can demonstrate that they have a real interest in something. Of course, such a system would be fair only if we had preschools for all children, where they could be exposed to a stimulating environment in a playful setting.

Education should be available to everyone, obviously. But education should not be an obligation, but rather a privilege that you earn by showing that you're curious about some part of the world. You get your education through that curiosity. The role of the teacher would then be to find the material that would allow the student to explore his or her curiosity. Because no matter what you're curious about, if you are really curious, you will have to team everything else.

Whether the topic is bugs or stars or singing, there are connections. There is mathematics behind the music and chemistry behind the animals. Once the students are hooked on their interest, the teacher should be the gatekeeper to the enormous richness of information in the world. The role of the teacher is not to convey the same content to a captive audience, which becomes almost immediately aversive to most children.

I'm interested in how you became interested in the idea of flow. Was it an experience of your own that led you to find out more about it?

Essentially, I was interested in psychology. At the time, you couldn't get a degree in psychology by studying happiness or well-being, but creativity was something you could study.

So I studied creativity in artists. And I was struck by how these artists would get completely lost in what they were doing for long periods of time. And yet, once they finished the canvas, they never looked at it again. Most of them weren't trying to sell their art. The finished painting was an excuse for them to paint. The process of painting was the reward that motivated them.

So I started wondering. Does this happen in other aspects of life? It turned out that people play music for the same reason. They play music to go on the journey, not to reach the destination. In sports, it is the same. I thought that the experience that made the activity so rewarding would be different in music or chess or rock climbing. Instead, what was so surprising was how similarly everyone described how they felt, even though what they were doing was so different.

And for yourself, what are the activities that give you the experience of flow?

When I was in high school, I played chess competitively. I used to paint. I did serious rock climbing. Later, I wrote fiction for *The New Yorker*. All of these are wonderful flow activities. Now I get creative enjoyment mostly from work and from hiking here in Montana with the family.

What family characteristics are most conducive to inspiring a love of learning?

Modeling is the best strategy. If the kid grows up seeing that his parents and other adults have no interest in anything except making money, it's unlikely that he or she will learn that it's fun to study or learn new things.

It boils down to the essentials: support and challenge. By challenge I mean high expectations, high standards, allowing the child a lot of independence, exposing students to new opportunities whenever possible. Support means simply that the child feels that the family as a whole is interested in every member's welfare. If

the mother comes home tired, the kids will notice it and try to help her and so forth.

When their families give them both support and challenge, children are more likely to choose harder subjects in high school, get better grades, end up in better colleges, and have higher self-esteem in college or after college. If they receive support only, the kids tend to be happy and feel better about them-selves, but they're not necessarily ambitious. They don't try to advance in school. They don't take harder classes.

If the family offers a lot of challenges but does not provide support, then the kids tend to do well in school, but they're not very happy. And if they have neither support nor challenge from the family, then it's bad all around. Support and challenge impart different strengths. Challenge gives children vision and direction, focus and perseverance. Support gives the serenity that allows them freedom from worry and fear.

I was struck by how these artists would get completely lost in what they were doing for long periods of time.

Teenagers often have a great deal of anxiety that gets in their way when they tackle a challenge. What's the antidote to anxiety?

Well, there are several. One is tutoring or help in the subjects that provide the most anxiety; another is building up students' strengths. It's often the case that once the students find something that they are really good at, then the anxiety disappears in the other situations. The parents should monitor what the child is interested in and give opportunities to excel at those subjects. Going back to our youngest son, we weren't the ones who helped him. Once he found that he was as good as or better than others at some thing, it gave him the feeling that he could do other things, too.

We have an idea in education that we have to work on our weaknesses. To a certain extent, that makes sense. But it makes even more sense to work on the strengths. Because once someone has developed strengths, then everything else becomes easier. Second, if you feel miserable studying mathematics and you spend all your time learning mathematics, chances are you will never be very good at it anyway. If the child is good at photography, allow him or her to explore and develop those strengths.

So you wouldn't be a fan of the core curriculum that requires all students to master certain culturally important content?

No, I think that's kind of silly. Look at our presidents. President Bush was a low *C* student all his life, and so was Clinton until he got to be a Rhodes scholar. It's kind of hypocritical to expect that all children should be good across the board when most adults aren't successful at everything.

The important thing is to stimulate the curiosity, reinforce the curiosity, and build on the strengths of the child. And then you have a vibrant, lively community instead of people who have been stuffed with information that they don't care about.

Of all the students you interviewed, do any stand out as special examples?

Hundreds. One could write a shelf of novels on the lives of these kids.

There was a boy from Kansas City who, at age 12, was really in bad shape. He hated school. He had nothing that he liked. His self-esteem was low. He was in trouble with the school. We thought he would end up having serious trouble.

Then, in his senior year, when we looked at his booklet, we noticed that he had completely changed. He was happy. He felt strong self-esteem. He'd write that he was especially happy when he was looking for a valve or pipes at the hardware store or when he was carrying some rocks to his truck. When he was doing these things, he felt really positive. And we couldn't understand what he was talking about.

In the interviews, we asked him. What is this about looking for a valve or carrying rocks? He told us that he had a business building koi ponds. At some time in his junior year, he saw one of these Japanese fishponds in somebody's garden, and he became so fascinated that he built one in his own yard and one for his

neighbor. And then he started building ponds commercially. At age 18, he bought a panel truck for his koi pond business. And he felt tremendous. He had to learn everything from plumbing to biology: how the fish live and what to feed them. He learned chemistry. He learned mathematics to understand water pressure and volume. Senior year he did great in school. He ended up going to a community college and taking technical courses. That is what can happen when a kid makes a connection between something inside and an opportunity outside. To me, that's how education should be. To educate means to lead out. And we don't lead kids out. We kind of stop them. To educate is to expose kids to many possibilities until they find, a connection between what's really important to them and the world out there. And then we must nurture and cultivate that connection.

Challenge gives children vision and direction, focus and perseverance. Support gives the serenity that allows them freedom from worry and fear.

Did the act of writing the journals help the students in your study become more active in their pursuit of learning?

Definitely. Some psychologists use journal writing as therapy. Once you really have an idea of what you're doing, you have a chance to take charge of your behavior. Often kids are put in a dependent state in school; they are not supposed to take any initiative except in what the teachers want them to do. Television puts

them in another kind of dependent state. Many come to tacitly believe that they have no say over their own development as human beings.

Writing things down and reflecting on them is one of those things that makes a person ask, Why am I doing these things when I feel so bad when I do them? Why don't I do more of those things that make me happy?

Author Biography

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Chapter 11
Flow: The Joy of Reading

Mihaly Csikszentmihalyi

A few years ago someone sent me a picture of the school in Csikszentmihayt, which is the village from which my family comes. It was a close-up of the gate to the school. It's a nice old wooden gate with a carved inscription at the top. I looked at it closely; it read in Hungarian, "A tudás gyökerei keserüek, de gyümölcsei edesek," which I'm sure you know what it means, but for those who don't know Hungarian, it means, "The roots of knowledge are bitter, but their fruits are sweet." And I realize that all my professional life I have been trying to disprove that saying. In other words, not only in Hungary, but also all over the world, the assumption is that knowledge is bitter. The acquisition of knowledge—the learning of knowledge must be a painful process. You do it because you hope that the fruits—what you can do with it later—will justify the pain that it took to get it.

I never thought that this was the case. Although I only found this inscription a few years ago, for atleast thirty years I had been trying to find a better way. A way for learning to be less bitter. Learning may always be difficult and often strenuous, but painful it doesn't have to be. And very often also the fruits are not so sweet because we make students work hard and painfully, but don't give them something that enriches their lives. So the theme of the talk that I want to give today is about the ways in which we can make learning less bitter as it goes on, and the fruits of it sweeter as they mature.

This is a conference about literacy and we are all worried about the state of literacy of our children—I certainly am. The last time I looked at the results of a survey of over 55,000 American students from grades 4, 6, 8, 12, I was quite shocked. For instance, one of the assignments was to write a convincing letter to get a summer job, helping out at a swimming pool. The open-ended essays were put into categories of excellent, good, inadequate, and so forth. I want to just read a typical letter that 24 % of 17 year olds wrote. It said: "I want to work in the pool." So here we have seven words put together in a kind of awkward way. This letter is supposed to get kids who are 17 a job, and this is the best they can think of how to compose the letter. Now, even though it is only one quarter of the 17 year-olds that

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write letters of this type, an additional half of the letters tend to be more verbose but not better structurally or more interesting or more lively.

But you know these facts, and you are probably aware of the situation as much as I am. When psychologists have tried to help the situation, I think they have concentrated too much on the cognitive approach to changing this problem. The reigning model of how the mind of a child works has been the computer, and the notion was that if we organize knowledge more rationally, in a more linear, gradual way, then children will assimilate it better and they will be able to read and write more competently. However this approach, useful as it may be, is severely limited. I don't think children are at all like computers. After all a computer, after it's plugged into the wall, and you boot it up, will do what you want it to do. Children don't. I am convinced that if children don't learn it's not because they don't know how to learn, it's because they don't want to learn. And the reason they don't want to learn is they don't see the process of learning as being anything as exciting as going outside or even hanging out at the mall, or playing with computers. And they don't see that the fruits of learning are going to be that worth striving for in the long run. So it's a question of motivation, not cognition. It's not so much how to teach in the rational, linear, systematic way but how to engage the fire, as Dave Master called it yesterday, and how to fan the fire of children's natural desire to master knowledge. So in this kind of situation I am quite a bit of an expert, because I went through the same problems that we complain about our children having.

I dropped out of high school when I was 15. I went to high school in Europe and it was a very good system but it was predicated under the notion that in order to be a literate citizen, you needed to spend 24 h a week studying Latin and Greek. Those were the two classical languages that any literate person had to know. I did that for about 3–4 years but then I just gave up because it didn't seem worth doing compared to what I was seeing happening around me. So I started working at 15 and I did a lot of things before going back to school. I came to the United States at age 22 and took a high school equivalency test and went on to college. But when I came to this country I knew no English. In high school, I had taken, besides Latin and Greek, two modern languages, German and English. I thought German and English were so similar that if I just learned one, I could wing the other. Since the German teacher was nice and the English teacher was mean, I decided to study German and try to pass my German off as English in the English part. Somehow the English teacher didn't like that much, so she flunked me. I flunked English twice, and then I gave up but I did learn English in Italy to a certain extent, because I liked the "Pogo" comic strips that were being run in the *Daily American* published in Italy. Many of you are too young to know "Pogo" but Walt Kelly's strip was very funny at the time. So I read Pogo religiously not knowing that the language that they spoke was the "Okefenokee" swamp dialect of Florida. So I had a peculiar idea of what English was. And the other way I learned was singing in a choir. We sang a lot of American folk songs and British ballads, which were Western dialect on the one hand, and Elizabethan English on the other. So those were fun. Those were enjoyable, meaningful ways of encountering the language,

whereas taking a grammar book and trying to follow the syntax and the grammar—that was so boring that it made no sense.

So I empathize very much with the character on the red bicycle from the little clip that Dave Master showed yesterday because I felt just like that character. The character was a little boy who learns to ride a bike. I learned English not in the classroom but outside and when I came to this country I had still had no formal education in English. In college I took a course in rhetoric and I asked the teacher what was the current, best example of writing in English I could follow so I could learn to speak better. He suggested two or three magazines, including *The New Yorker*. So I started reading *The New Yorker*, and I liked the stories and the poetry in it. I decided that at the end of my first year I would try to write something for *The New Yorker*, to show myself that I had learned English. So that's what I did and *The New Yorker* published some of my short stories at the time. Again that was fun—it wasn't the hard, bitter struggle with grammar that schools are supposed to pass on to students.

Actually, this seems to run in the family. My older son was ready to leave math in high school. He had the highest math scores in his Chicago high school. He went to Harvard to be a math major but he was soon turned off by mathematics there. Everyone was so serious, so nerdish; he had lost completely his enthusiasm for math. He took a course in non-western cultures and he read some poems by the Medieval Chinese poet Li Po, and he loved those poems so much that he decided to learn Chinese. And if you think becoming literate in English is difficult, becoming literate in Chinese is much more difficult. But he did it, and he is now teaching Chinese at the University of Wisconsin. We had a dinner guest once, the president of the Chinese Academy of Sciences, the highest-ranking scholar in China. He asked what our son was doing and we said he was studying Chinese, and he asked if my son could show him some of the books he was reading. My son showed him this fourth century text that he was translating, written in classical Chinese. The president told us he couldn't read the classical text because the Chinese became willingly illiterate in classical Chinese by burning the books and exiling anyone who could read the ancient language. So literacy is kind of a funny thing, in how it changes, and how social traditions make it more or less available to people.

Literacy is a very relative thing. Thirty years ago, I was passably literate in Fortran. I could write a simple paragraph in Fortran, which was the computer language that people in my field were using at the time. So I felt pretty good: I was literate in this new idiom. Now, thirty years later, I am completely illiterate in about twenty different computer languages that have emerged since—from COBOL to SAS. I don't even know the names of many of them. When there was no writing, a few thousand years ago, people were not illiterate. Man becomes illiterate because there is language, and the more language becomes important—the more symbolic systems become important—the more likely it is that people will be illiterate, which is a strange paradox. Yet symbolic systems are becoming more a part of what we do. Instead of laboring with our hands, and cultivating the fields, now we have to be able to manipulate, control, and understand symbolic

systems, which include numeracy, literacy, and computers. Unless we make this process of acquiring literacy in symbolic systems enjoyable, it is going to be a very tough job to help young people become effective adults.

So I am convinced that the best way to learn a symbolic system is not to make it a serious, rational, and very abstract process, but to make it as playful as possible. A few years ago, this idea would have seemed way off, but to judge from the presentations at this conference, I am encouraged to see that this is no longer a radical thought. What Lil Thompson and Dave Master were saying is absolutely in line with the kind of findings I come across in my research. I would like now to present an introduction to my work on "Flow," which is so complementary to what has been said here. The notion of a "flow" experience came to me originally when I was studying art students, way back in the 1960s, when I was doing my doctoral research, I was trying to understand why some people would dedicate so much effort to doing things that provided no material rewards—they didn't get money, or fame. These were people who composed music, painted, played chess, or climbed mountains. People who devoted a lot of energy and sometimes risked their lives for no good reasons. And I said to myself, there must be something really motivating in these experiences. What I found most interesting, after interviewing people from a great variety of backgrounds, was that all of them, no matter what they did, described how they felt when what they were doing was really going well in almost the same words. Composers of music, chess players, athletes, dancers, computer programmers, they all used more or less the same words. Colleagues in Europe and Asia later replicated these studies and found that regardless of culture, gender, or education, people all over the world seemed to describe what they were doing, when it was going well, in the same words. And this seems to be the essential component of the creative process, but also, more generally it is the feeling you experience when you are doing something well, the best you can do at the moment. Let me now introduce some of these slides.

Slide 1-Flow in Composing Music, by Czikszentmihalyi, 1975

> *You are in an ecstatic state to such a point that you feel as though you almost don't exist. I have experienced this time and time again. My hand seems devoid of myself, and I have nothing to do with what is happening. I just sit there watching in a state of awe and wonderment. And [the music] just flows out by itself.*

This is from one of the first interviews I did over 25 years ago. This well-known composer describes how it feels when composing music is going well. This very short excerpt is part of a two-hour interview, which gives you a very good sense of what I am talking about. First of all, he says it's an "ecstatic state." Now, ecstasy sounds like a very highfalutin' concept. It sounds vaguely mystical. But "ecstasy" in Greek means, "to step to the side of something." "Ecstasy" refers to the fact that people are no longer in ordinary reality, "standing to the side of" normal,

everyday existence. One can achieve it by doing many different things. One way is to focus on music, the writing of music; drawing, as David talked about yesterday; solving a mathematical problem; talking to your child; having a good conversation, or singing a song. All of these are moments when you step to the side of routine, everyday existence.

Then the composer says that this feels "almost as if he doesn't exist." And why is that so? Well, because our mind is not able to process more than a limited amount of information, on the order of more or less, 120,150 bits a second. This seems like a lot, but as you are listening to me, you have to use 60 bits per second to process my words, so you can listen to two and a half conversations at the same time and understand them, but you can't listen to three conversations at the same time—no one can. We have a limited ability to process information. When you are doing something that really involves you, as this man's task of composing music does him, your entire mind is used to process the relevant information—the music, the notes, imagining what these notes will sound like when they are being played. So you don't have any room in your mind to think of yourself as a person separate from what you are doing. You are at one with your actions. You are not separated and thinking "Oh, well, maybe I should be doing something else…" It's exactly like Phil [Dreyer] described earlier how he feels when he is teaching. And as a teacher feels like that, a composer feels like that, too. This man says, "…my hand seems devoid of myself…" and it moves by itself. This is very typical: you feel that the action is so spontaneous, so automatic, that you don't have to make any effort, and you don't have to direct it, you don't have to control it, it just goes. He says he just looks at it with "awe and wonderment." But in order to get to this state, he had to practice many years. I could spend two weeks looking at my hand and I wouldn't feel any "awe and wonderment" because I don't know how to write music. So you have to have the training and develop the discipline, you have to internalize the technique, and then you can let it happen. Finally he says, "The music just flows out by itself." So many people used the analogy of "flow," that I ended up using that little word to describe the whole process. When I talk about "flow," it's a short placeholder for a complex experience such as this.

Slide 2-Flow in Poetry, S. Perry, 1996

> *There are days when what I do feels like an archaeological dig: I carefully remove one layer of memory and go down deeper and then deeper. At first, I am reasonably sure of what I will be charting, but at a certain depth (I can never predict quite where), I uncover what I could not have predicted, and there, flow begins.*

This excerpt is from a poet who describes how it feels stepping into ecstasy while writing. Susan Perry collected it for her book *Writing in Flow* (which was on the bestseller list of the *Los Angeles Times* for four or five weeks). She interviewed many leading writers, both of prose and poetry, to find out how they can get into flow when they are writing. This poet describes writing as if it were "an

archaeological dig," removing layers not of soil, not of dirt, but of memory, of past thoughts and feelings. It's a nice description of how we make the translation from rational thinking into flow into this ecstatic state. There comes a moment, as you are trying to access your experiences, your memories, your emotions, where you are no longer forcing to recover them, they come up by themselves. At that point, you just let go and try to follow them, try to put them on paper before they disappear, but you are not leading them. It's a nice description of the transition from the hard work of "digging" to welling up of the flow.

Slide 3-Flow in Poetry, by S. Perry, 1996

> *I think of it as a cave, and you spend so much of your conscious effort to approach this cave, and looking in the dreamy, unapproachable mass of rock and there's no entrances, and you look and push there, and nothing is there, and then you give up and you leave, and on the way out, you see an opening. And that's so often how it starts.*

This poet provides a different analogy, that of approaching a cave and trying to find an entrance to it in the rock. The story is similar, the hard work one must expect in looking for the entrance. And it's such hard work you almost give up and you are ready to leave, but then you see an opening, and suddenly the rush of words starts by itself.

Slide 4-Flow in Playing the Piano, by Delle Fave, 1993

> *It is really great. I no longer notice my fingers, the score, the keys, the room; only my emotions exist, and they come out through my fingers. You become one with the music, because the music is exactly what you are feeling, too. I don't look at my fingers, except when the passage is technically very difficult. I dont' look at anything. Perhaps I look inside myself.*

This interview was collected by Italian colleagues at the University of Milan, who interviewed 60 outstanding piano players. Again, the same notion—you don't know what you are doing. It all comes through by itself. You become one with the music. All you really have to do is to look inside yourself to allow the emotions, the feelings, and the skills to express themselves. Again, this musician does not talk about all of the training that has preceded this moment. But once you master the skills, you let the music flow out and there's a tremendous feeling of joy that comes with it.

Slide 5-Flow in Poetry, by S. Perry, 1996

> *It's like opening a door that's floating in the middle of nowhere and all you have to do is go and turn the handle and open it and let yourself sink into it. You can't particularly let yourself through it. You just have to float. If there's any gravitational pull, it's from the outside world trying to keep you back from the door.*

Whether it's digging, or walking into a big cave, or opening a door—what they are describing is the difficult process of entering the state of ecstasy. But there's a gravitational pull. The world of routines and of everyday life is trying to pull you back, and that's what keeps you from entering the world of ecstasy.

Slide 6-Flow in Figure Skating, by Susan Jackson, 1996

> *It was just one of those programs that clicked. I mean everything went right, everything felt good…it's just such a rush, like you feel it could go on and on and on, like you don't want it to stop because it's going so well. It's almost as though you don't have to think, everything goes automatically without thinking…it's like you're on automatic pilot, so you don't have any thoughts. You hear the music but you're not aware that you're hearing, because it's part of it all.*

Sue Jackson is a sports psychologist who interviewed some of the leading Olympic figure skaters and other athletes. This is a very different enterprise, a physical activity, but some of the same images and ideas appear here also. The poet Yates wrote a beautiful line which says that you can't tell the dancer from the dance, when you are really involved, you are so much a part of what goes on that you are at one with it.

These are quick descriptions of how people describe being in flow. But what makes it happen?

Slide 7-How Does it Feel to be in Flow?

1. *Completely involved in what you are doing—focused, concentrated.*

By now we have over eight thousand interviews around the world that researchers have collected. Concentration and focus are always part of them. How do we get focused, and concentrated? It's not easy—in everyday life we rarely get a sense of being really focused. And, as teachers, you probably know how difficult it is to get a classroom to focus. Let me just give a simple example from one of our studies. In this study we gave teachers a pager. And during the course of the class the pager would beep at a random moment and then the teacher would write down what he or she was doing, and what he or she thought the students were thinking at that moment. The students also heard the pager, and they also wrote down what they were thinking about. This is a typical example—it is from a very good high school, with an excellent teacher, and the teacher, a history teacher, was talking

about how in 1213 Genghis Khan was coming down with his Mongol horsemen to conquer China. They faced up to the Great Wall, and they couldn't cross it because of the horses and they didn't know how to breach the Wall. So they rode all the way down, 600 mile to the end of the Wall, and there they were able to turn around it, and they went north and invaded, pillaged and finally conquered the land all the way to what is now Beijing. So he was going through this story, the conquest of China by the Mongols. And he wrote down, "This is what my students are thinking about." There were thirty students in the class, twenty-eight of whom didn't mention anything about China. They wrote about the coming weekend, about last night's T.V. show, they thought about lunch—a lot of them were thinking about lunch. However, two students did mention China. One wrote, "I always wondered why Chinese men wore their hair in ponytails." The last student wrote: "I was thinking about the great dinner I had at this new Chinese restaurant." But nobody mentioned Genghis Khan, 1213, the Great Wall, or anything of the sort. The point is that more often than not, this is the concentration you find in a typical classroom.

We tend to assume that just because students are sitting and looking at us they are processing information. But one of the great gifts human beings have is that their mind doesn't have to be in their body, This is especially true of students. In other words, you may have thirty bodies in the class in front of you, and thirty minds are all outside. If you want to get students concentrated you have to give them something that will attract their attention. How to do that is the basic, bottom-line skill that a teacher has to develop sooner or later, either through native skills, or through the materials they are using. What makes this difficult is that the materials we use, and the language of the typical curriculum is not really geared towards engaging the attention of students. Computers will start processing information once you plug them into the wall, but students don't.

Slides 8 and 9-How Does it Feel to be in Flow?

2. *A sense of ecstasy—of being outside everyday reality.*
3. *Great inner clarity—knowing what need to be done, and how well we are doing.*
4. *Knowing that the activity is doable—that our skills are adequate to the task.*

The condition of stepping outside the reality of everyday life usually occurs when we know second by second what has to be done next, and when we get feedback immediately for what we are doing. For instance think about the kind of activities that survive over hundreds of years just because they produce flow. Take for example music. There is no point in music except the experience you get from it. Very few people get rich from it, they don't get power from it, and they don't get anything else except the experience of making music. Music is a good example because when you sing or play an instrument, you know what note you want to hit in the next moment, and you can hear whether you hit that note or not. You get

immediate feedback. And it's because of that…that the concentration has to be great, because if you get distracted, you miss the next note, and you are lost.

The same thing happens when you play tennis, for example. Sports are another activity that only exists because it gives flow. Again, very few people get rich; they don't get any other great benefit except the experience of playing it. Now, imagine yourself playing tennis—you know every second where you want the ball to go, and you see immediately where the ball actually went. And it's because of this constant chain of 'goal, feedback, goal, feedback,' that you are concentrated and you get lost to the world, there are other activities where goals are not as clear as in tennis and in singing, but then you have to be able to define those goals for yourself, and if you can't make these precise goals for an activity and you can't read the feedback yourself, you will lose interest in what you are doing pretty quickly. Just to tie in what I am saying to what Dave [Master] was saying yesterday, education is a good example because even though it is not as clear as tennis or music, you can see what you are doing very quickly, other people can give you feedback, but you can see what you are doing, and you can correct it, and you are completely involved in the process. And in those situations, one enjoys what one is doing.

For instance, one profession we studied, that is very attractive to practice, is surgery. Surgeons love to operate, to cut people up, and in fact, they say it's as addictive as taking heroin. We talked to many surgeons who never take vacations, and finally, when their spouse drags them to Acapulco or some other nice place, after two days on the beach, they volunteer at the local hospital to do surgeries for free because they find the beach so boring compared to an operating table. And they tell you why it is so, it is because when you operate, you know millisecond by millisecond that you are doing right—because if there is no blood in the cavity and no vein is popping out or something, then you are doing good. If something happens and the patient dies, you know why the patient died. You get immediate feedback. And surgeons say that they would not want to be a psychiatrist for love or money. A psychiatrist is working for four years with a patient and never gets to know whether he is doing anything good or not. In their opinion, it's very boring to be a psychiatrist. Good psychiatrists, however, will tell that they can read the feedback because they are paying attention to the patient—the demeanor, the body language, the dreams that they bring up are all feedback to the psychiatrist, but the surgeon needs more concrete feedback.

For educators, the question is: "How do you get students to set goals, get feedback in the learning process?" For instance, reading is the most frequently mentioned flow activity around the world. Reading novels, poetry, and sometimes essays. But how does reading provide goals and feedback? Well, if you think about reading a good book, a novel—or about a child reading a story—what makes that story enjoyable? It is enjoyable because the child can begin to visualize the characters, the events, the landscape, the settings; and the child begins to make little predictions as to who is the good guy, who is the bad guy, who is going to marry who, who is going to—all of these guesses that you make as you flip the pages. As you turn the pages, you begin to get feedback, and you get to know that

this person isn't as bad as you thought, or they're not going to elope after all, or nobody is going to die, or if they are going to die, something good is going to happen. If you are not forming these expectations in your head, and you don't get the feedback, you are not hooked on the book, and you are not going to enjoy reading. So this clarity that you develop as you read is one of the things that makes reading enjoyable, and so do the other things that we will be getting to.

For instance, the fact is that you don't enjoy something that is too difficult, that you can't cope with, nor do you enjoy something that is too easy. You have to find a balance between the challenges or opportunities on the one hand, and your skills on the other hand. Now, in reading, for instance, this means that you don't enjoy reading a book where you can't empathize with the characters, where you can't understand their motivation, where you can't understand the social norms by which these people operate. On the other hand, you don't enjoy a book that has a plot that you have already encountered several times. You don't enjoy a book where the characters have such superficial or shallow motivations that you say these are like cartoon characters. They are too obvious—that is not enjoyable. You enjoy a book where the author has been able to invent challenges in the book that provoke a response in you, and your skills at interpreting, your skills at empathizing, your skills at imagining, at being engaged at just the level that is commensurate with your abilities. So this balance of challenge and skill is one of the aspects that make an activity enjoyable.

5. *A sense of serenity—no worries about oneself and a feeling of going beyond the boundaries of the ego.*

When these first four dimensions are present, then you begin to forget yourself, to lose yourself because you are too immersed. You are processing too much information about what you are doing to think about yourself. Paradoxically, however, we find that after having a flow experience, people's self-esteem goes up significantly. In other words, you have to forget yourself in order to develop a stronger self. The self is stronger after the flow experience because you realize that you have accomplished something out of the ordinary—that you have stretched yourself—that you have become more complex, more skilled. Often this results in the feeling that you are no longer alone, you are no longer just this defenseless, vulnerable person, but you are a part of something much larger. Musicians call this being in touch with the harmony of the spheres. One feels that there is this beautiful order around, with the planets, the galaxies—and when you are doing music you are in touch with that beautiful, powerful pattern. Chess players say that when they are in a good game they feel like they are in touch with the forces of a strong magnetic field; a logical order that embraces the universe and that they are participating with. And, of course, if you read poetry or prose, you feel elevated, your heart opens up and you feel that you are not alone. You are a part of a human community, and even a greater community of being—a force out there.

6. *Timelessness—thoroughly focused on the present, hours seem to pass by in minutes.*

There is a sense that time seems to fly—that you don't notice time passing, because of the tremendous rate at which you are processing information.

When these conditions are present, then whatever you are doing becomes intrinsically motivated—the activity becomes intrinsically rewarding. In other words, you do it because it is worth doing—you don't do it just to get a good grade, or another external reward. Something is externally motivating if it is done for a purpose outside of itself. For example, to study because one wants good grades, because one wants to please a teacher, or one's parents, or because one wants a good job. Instead, one studies because one loves to study—because it is fascinating and one wants to learn. You want to be part of this community of knowledge; you want to be part of this universe that is so interesting and different. Because of this you can actually turn anything into a flow experience. It doesn't have to be music, or sports, or arts—there are people who experience flow when ironing shirts, when mowing the lawn, when doing the most trivial, or repetitive activities. If the activity holds the person's attention, concentration; and one can specify the goals and read the feedback; and if one can balance challenges with skills—then anything, including learning in a school, becomes an activity one wants to do for its own sake. Anything less results in a role imitation of learning, a brief memorization that disappears as soon as the rewards and punishments of the classroom are removed.

Part II
Empirical Studies

Chapter 12
The Ecology of Adolescent Activity and Experience

Twenty-five adolescents reported their daily activities and the quality of their experiences for a total of 753 times during a normal week, in response to random beeps transmitted by an electronic paging device. In this sample adolescents were found to spend most of their time either in conversation with peers or in watching television. Negative effects were prevalent in most activities involving socialization into adult roles. Television viewing appears to be an affectless state associated with deviant behavior and antisocial personality traits. The research suggests the importance of a systemic approach which studies persons' activities and experiences in an ecological context. The experiential sampling method described in this chapter provides a tool for collecting such systemic data.

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Introduction

When social scientists attempt to describe the psychology of a given stage of the life cycle, such as adolescence, they are faced with some basic methodological choices which will affect the data they obtain and hence the conclusion they derive. Studies of "normal" adolescents may rely on the case study format (e.g. Blos 1962; Henry 1963) which often produces enlightening insights, but has the drawback of depending heavily on the intuitive skills of the researcher. Or periodic tests and interviews may be used (e.g. Douvan and Adelson 1966; Offer 1969; Coleman 1974b) to describe continuities and changes in the respondents' cognitive, social, and affective performance.

While this approach has been extremely useful in beginning to outline areas of stress and conformity, it is limited because it does not deal with adolescents in their natural milieu. The information it provides is a step removed from the subjects' interaction with the material and social environment. Consequently, one is not entirely sure whether the testing and interviewing, which are based on the researchers' prior notions of what is important, will reflect the salient issues as adolescents encounter them in their daily lives.

Other approaches allow a more direct appraisal of adolescents in natural contexts, but are subject to major limitations. Observational approaches (e.g., Dunphy 1963; Sherif and Sherif 1972) suffer from the intrusive impact of the observer and/or some limitations on the contexts that can be studied. Diary or time budget methods such as those reported in Szalai (1972) could provide information on the salience of adolescent activities, but are limited by the inaccuracies of retrospective report. No method used to date has provided systematic subjective data on the motivation, affect, and moods associated with persons' daily activities.

Development involves the evolution of adolescents' systemic interaction with the world. We believe that in order to understand adolescents one needs to know what they do all day and the pattern of feelings associated with what they are doing. We need a systemic, ecological approach which will describe where adolescents invest their attention, and thus the systems of interaction in which they are engaged. And we need to determine the climate of motivation and affect involved in the various uses of attention, and hence the quality of feedback these uses produce. Over 80 years ago William James wrote that a person's mind and sense of self are shaped exclusively by what he or she chooses to attend to (Bakan 1966). What a person will pay attention to is in large part determined by the daily activities he engages in. Therefore, knowledge of these activities and how they affect participants is essential in attempts to infer the structures of attention which develop and which in turn determine the cognitive and affective patterns which define adult personality.

The method of experiential sampling, developed by Prescott et al. (1976) is an attempt to combine the more personalistic approaches of psychology with the more systemic approaches of ethologists and sociologists. The technique is designed to answer the following types of questions:

What do adolescents do all day long? How is their attention channeled through interaction with various activities?

What motivates these activities? What rationales are given for engaging in various forms of interaction?

How do they perceive the quality of the interaction? How much challenge do they perceive in the various activities, how much do they see that there is at stake?

How are adolescents affected by involvement in various activities? What is the feedback they derive from interaction, and how does it change their affective states?

Method

Procedure

The data were obtained from a sample of adolescents, each of whom filled out self-report forms at random times during the waking hours of a normal week. The scheduling of self-reports was controlled by one-way radio communication. Each subject carried a pocket-sized electronic paging device on his person for a period of 1 week. Radio signals with a 50-mile radius were emitted from a central location according to a predetermined random schedule. These signals caused the receivers to make a series of audible beeps, which served as the stimulus for subjects to complete the self-report forms.

The schedule specified 5–7 signals per day at random times between the hours of 8 a.m. and 11 p.m. All seven days of the week were included in the schedule. The 42 signals per week were transmitted according to the same random pattern to each *S*; although the sequence differed depending on which day of the week a *S* started. Records were collected according to this procedure during the months of February and March, 1976.

Sample

The sample consisted of 25 volunteer subjects obtained through personal contacts by graduate students in a course on adolescence. All lived in the Chicago area. Their ages ranged from 13 to 18, with a median of 14. There were 16 girls and 9 boys. Sixteen of the subjects were White; 6 were Black, and 3 were of Spanish-American descent. A substantial minority of the *S*s, 40 %, lived with only one parent (mother), the rest lived with both parents. AU subjects had at least one sibling. Socioeconomic status of the guardian was coded according to Hollingshead's two-factor scale. The sample was skewed toward the highest class (32 %), with only 3 *S*s (12 %) in the lowest class. The intermediate classes contained 5, 4, and 5 *S*s respectively. The 25 *S*s filled out a total of 753 self-report records. The

records completed ranged from 21 to 38 per person, with an average of 30. Subjects responded to approximately 89 % of the signals by filling out records. Thus the data set does not include 11 % of the sample activity. Informal reports suggest that some subjects turned the receivers off or failed to respond when sleeping, taking a test, engaged in a sport such as swimming where the receiver could not be kept on their person, or when they just did not feel like filling out the form. Omissions also occurred when subjects forgot the receiver or the forms at home, and when subjects traveled beyond the signal transmission range.

Clearly this sample of 753 records is not a representative sample of adolescent activities. In addition to the imbalances of the subject pool and the 11 % rate of missing records, it must be remembered that the sampled times were restricted to the winter months of February and March and the hours between 8 a.m. and 11 p.m. Nonetheless it is felt that these data provide an unprecedented glimpse at the daily lives of a fairly normal group of adolescents, and that this research will serve as a pilot study to illustrate the potential which this novel methodology offers for understanding behavior.

The Self-Report Form

*S*s were provided with bound booklets of 50 identical forms. Each form consisted of two sides of a page containing items that required approximately two minutes to complete.

1. The first items were open-ended questions asking, "Where were you?" "What was the main thing you were doing?," and "What other things were you doing?" Responses to these questions permited coding *S*s' *primary and secondary activities.* An additional question inquired whether the *S* was alone, with friends or acquaintances, with family, or with strangers.
2. Next came the question "Why were you doing this?" Three choices were given which could be checked either yes or no: "I had to do it," "I wanted to do it," and "I had nothing else to do," Responses to these items identify the *rationale for the activity.*
3. An additional group of items was designed to measure the *quality of the* S*s' interaction with the environment.* A 10-point scale from "low" to "high" was provided for answering such questions as "Were you in control of your actions?" and for ratings of "challenges in the activity," "skills in the activity," and "Was anything at stake for you in the activity?"
4. Another group of 13 items solicited semantic differential ratings of *mood and physical state.* Subjects were asked to rate which of two opposite adjectives best described their state at the time they were signaled. The ends of the 7-point scale corresponded to extreme opposing states such as "hostile" versus "friendly," "happy" versus "sad." The middle point on the scale was marked "do not feel either."

Analysis and Interpretation of the Data

The activities in which *S*s were engaged at the time of sampling were initially coded into 152 categories, which were later pooled. This chapter gives special attention to the 11 most prevalent activities, comprising 542 (72 %) of this sample's responses. The remaining 211 observations include such activities as sleeping, traveling in a car, watching people, fantasizing, and numerous other activities which occurred too infrequently to be systematically evaluated (e.g., attending a religious service, being examined by a doctor).

The major activity categories are:

(1) Talking with peers (also talking on the phone, discussing school work with other students);
(2) Talking with adults;
(3) Watching television;
(4) Playing sports or games;
(5) Eating (snacking, drinking);
(6) Grooming (combing hair, dressing, bathing, brushing teeth);
(7) Walking;
(8) Work (cooking, washing dishes, cleaning, doing laundry, moving things from place to place);
(9) Reading (magazines, newspapers, and books);
(10) Studying (for a class, working on problems, writing papers);
(11) Class (listening and participating in class, talk with teacher).

The scale format of the remaining items was suited to interval level treatment. Semantic differential items were coded on a scale of 1–7 with the response "do not feel either" coded as 4.

A comparison of early and late records revealed significant differences on 4 out of 19 variables measuring mood and quality of interaction. These differences might be attributed to habituation to the task. A *t* test contrasting the means of the first half of the week with the means of the second half (df = 753) showed that in the second half of the week 5 s felt significantly less self-conscious ($p = 0.009$), and more constrained ($p = 0.03$). They also reported higher levels of challenges ($p = 0.01$) and skills ($p = 0.01$) in the situations they were in.

Results

The Structure of Adolescent Activity Patterns

The 753 random observations of 25 persons provide an estimate of how adolescents divide their time among major activities. Talking with peers, watching TV,

Table 12.1 Percentage of time *Ss* ($N = 25$) were observed ($N = 753$) in the major activity categories

Activities	Percent of time primary	Percent of time secondary
Talk with peers	14.7	18.1
Talk with adults	4.1	4.0
Watching TV	10.6	2.9
Games/sports	4.4	0.0
Eating	4.8	5.0
Grooming	5.2	2.3
Walking	4.5	1.3
Work	4.0	0.9
Reading	5.7	1.3
Studying	8.8	4.1
Class	5.2	1.2
Other	28.0	23.4
Total (%)	100.0	66.5

and studying appear to be the most prevalent primary activities of adolescents. The frequencies are presented in Table 12.1.

Talk absorbs 41 % of adolescents' time, either as a primary or as a secondary activity. There were no significant differences between boys and girls, or between younger and older *Ss* in the prevalence of talk. Lower SES 5 s tended to spend more time talking with peers ($p < 0.06$). Persons ranked lower in the sibling birth order spent more time talking with adults ($p < 0.05$).

Talk with peers as a primary activity occurred most often in public (38 % of times) or in school (34 % of times) and rarely at home. Talk with adults occurred in the respondents' homes on 61 % of the occasions; hence it can be inferred that parents are the primary partners for adult talk. The other 39 % was evenly distributed between school (17 %) and other public environments (20 %).

Outside of talk the two major forms of recreation for this sample were watching television and playing sports and games. Virtually all teenagers did some television watching; only 2 did not report watching TV at least once. It was equally prevalent among upper-and lower-SES adolescents, boys and girls, older and younger subjects. Television watching was typically done with family (43 % of times) or alone (37 % of times). It nearly always occurred in the home (89 % of times). Secondary activities such as talking, eating, and studying were mentioned in two-thirds of instances where watching TV was the primary activity.

Playing sports or games was reported more frequently by boys than by girls, 9.9 % of the boys' activities falling into this category, and only 2.0 % of the girls'. It was also more common among younger members of the sample. School was the setting for sports and games 44 % of the times and other public environments 35 % of the times.

While boys spent a disproportionate amount of time in sports and games, the girls spent more time grooming. Grooming was reported 6.9 % of the times by girls and only 1.6 % of the times by boys.

Table 12.2 Variability of involvement in major activity categories

Activities	Number of observations ($N = 542$)	Proportion of Ss' responses		*Ss* never reporting activity ($N = 25$)	Midspread range of percentages for half the sample
		Median percent	Maximum percent		
Talk with peers	111	11	26	0	7–18
Talk with adults	31	3	14	10	0–7
Watching TV	80	11	37	2	6–16
Games/ sports	33	0	26	14	0–3
Eating	36	5	14	4	3–9
Grooming	39	3	16	8	0–10
Walking	34	3	24	10	0–6
Work	30	0	8	15	0–5
Reading	43	3	21	9	0–11
Studying	66	8	18	2	6–13
Class	39	6	30	4	3–7

Among the remaining major activity categories, there were no substantial differences in frequencies by background variables. Reading, studying, and class involvement, for example, were each roughly equal in prevalence across sexes, SES groups, and ages.

The uniformity of time allocation is rather striking. Table 12.2 presents data on the distribution of individual frequencies for each of the eleven major activity categories. It shows, for example, that half the subjects (the quartiles above and below the median) reported talking with peers within the narrow range of 7–18 % of all the times they were sampled. Table 12.2 also shows that during the week, 15 adolescents (60 % of the sample) never reported doing housework or any other kind of work besides studying, and 14 (56 %) never reported being involved in any game or sport.

Experiences Associated with Adolescent Activities: Rationale, Quality of Interaction, and Moods

Having estimated the frequency of the most common types of situations in the daily lives of adolescents, we turn to the second objective, which is to determine the constellation of motivation and affect associated with these standard attentional contexts.

Rationale for Activities

Responses to the question "Why were you doing this?," which was included in each observation provide evidence for the motivations involved in adolescent activities. 12 % of the time subjects checked the response, "I had to do it;" 6 % of the time subjects checked "I had nothing else to do;" and 38 % of the time, they marked the response "I wanted to do it." In other words, purely voluntary activities are three times as frequent as purely coercive ones. The remaining 44 % of the responses contained combinations of the three possibilities (see Table 12.3). For each activity that an individual engaged in, we could identify whether he or she more frequently considered it purely coercive ("I had to do it") or purely voluntary ("I wanted to do it"). For each activity counts were made of the individuals who more frequently rated it as purely coercive and the number who more frequently rated it as purely voluntary. Differences in the distribution of these two rationales were evaluated by comparing the distribution of counts to binomial tables (sign test).

Four activities rated significantly more voluntary than coercive were talking with peers, watching TV, eating, and playing sports or games. The two activities which were rated significantly more coercive than voluntary were studying and class activities. It should be noted, however, that watching TV and playing sports or games, although primarily voluntary, were engaged in about half of the time because the subjects also had "nothing else to do,"

Quality of Interaction

What motivates teenagers to engage in activities becomes clearer when one considers how they rate the quality of interaction in these same activities. Table 12.4 presents the mean ratings of how much is at stake and the level of challenges, skills, and control in various primary activities. The data suggest that the perceived amount of stakes and challenges are most affected by what one does, while perception of skills and control appears to be more independent of activities.

The only activities in which adolescents perceived substantial stakes are school-related activities. These are also the activities that they tended to perceive as coercive (see Table 12.3), Sports and games received the highest ratings for challenges, followed by schoolwork. The lowest ratings on both scales were given to watching TV. The most frequent activity, talk, received intermediate ratings on these two scales.

Adolescents reported highest "skills in the activity" when doing such things as reading, eating, housework, and grooming, which are usually solitary activities. They perceived themselves to have markedly low skills when talking with peers or adults. The lowest rating of skills occurred when watching television. The highest ratings of "control of your actions" were given when subjects were talking with adults and grooming, while the lowest ratings occurred again for TV watching.

Table 12.3 Rationales given by subjects for engaging in major activity categories

Activities	Number of observations	Percent							Significance of differences[a] (1) versus (2)
		Had to do it (1)	Wanted to do it (2)	Nothing else to do (3)	(1) + (2)	(1) + (3)	(2) + (3)	(l) + (2) + (3)	
Talk with peers	105	3.8	52.3	5.7	6.7	1.9	26.7	2.9	0.001
Talk with adults	28	7.1	46.4	3.6	7.1	3.6	32.1	0.0	0.1
Watching TV	76	1.3	42.1	13.2	1.3	1.3	40.8	0.0	0.001
Games/sports	33	3.0	39.4	0.0	6.1	3.0	42.4	6.1	0.03
Eating	36	5.6	50.0	2.8	13.9	0.0	25.0	2.8	0.001
Grooming	37	24.3	35.1	8.1	16.2	0.0	10.8	5.4	NS
Walking	34	14.7	3S.2	8.8	23.5	0.0	11.8	2.9	NS
Work	30	26.7	16.7	6.7	13.3	0.0	16.7	20.0	NS
Reading	43	20.9	34.9	2.3	14.0	4.7	16.3	7.0	NS
Studying	63	33.3	14.3	1.6	20.6	9.5	6.3	14.3	0.03
Class	35	35.3	11.4	8.6	16.6	16.6	2.9	8.6	0.03
Subtotal	520	13.0	38.0	6.1	11.0	3.3	23.4	5.3	
Other activities	200	11.0	38.2	6.1	10.1	5.7	18.4	10.5	
Total	720[b]	12.3	38.0	6.1	10.7	4.0	22.0	6.9	

[a] Computed by binomial sign test

[b] No rationale was given for 33 observations

Table 12.4 Mean ratings on quality of interaction by major activity categories

Activities	Number of observations	Stakes	Challenges	Skills	Control
Total	542	2.13	3.39	5.60	7.40
Talk with peers	111	2.28	2.86	5.29	7.25
Talk with adults	31	1.43	2.90	5.00	7.79
Watching TV	80	1.00	1.53	4.96	6.66
Games/sports	33	1.77	6.65	5.61	7.12
Eating	36	1.54	1.97	6.06	7.68
Grooming	39	1.23	2.15	6.00	8.25
Walking	34	1.69	1.55	4.33	7.31
Work	30	2.07	2.79	6.55	7.24
Reading	43	1.48	4.40	7.14	7.54
Studying	66	4.42	6.37	6.16	7.75
Class	39	3.63	4.97	5.08	7.62
F value[a]		8.07[b]	20.54[b]	3.01[b]	2.12[c]

[a] Significance computed by one-way ANOVA, df = 11,531
[b] $p < 0.001$
[c] $p < 0.05$

Moods and Physical States

The mood ratings provide evidence on the quality of adolescents' subjective experiences in the most common activities of their daily lives. A significant relationship was found between the eleven activity variables and ten of the thirteen mood items. The items suspicious-trusting, creative-dull, and resentful-satisfied showed no relation to activities. This finding suggests that these mood variables are relatively more stable characteristics of a person's state. The mean values for seven other mood items are presented in Table 12.5. Ratings on the remaining mood items—alert-drowsy, tense-relaxed, and irritable-cheerful-were not included because they correlated so highly with some of the other scales that they provided essentially redundant information. Activities have the greatest effects on the mood variables active-passive and free-constrained. Relatively least affected by situations is perceived happiness—although it should be recalled that perceived trust, satisfaction, and creativity are even less affected, which is why they were excluded from the table.

Of the eleven primary activities, the ones that provide the most positive experiences are playing games or sports (in which *S*s perceived themselves as being most strong, active, free, excited, and sociable—although relatively hostile), and talking with peers (in which *S*s were the most happy and also very friendly and sociable). The activities associated with the least positive overall mood are watching television (when *S*s felt the most weak, and next to the least active, happy, friendly, and sociable) and studying (when *S*s felt the least free and excited). Doing work made teenagers feel quite strong and active, but it also made them feel the least happy, friendly, and sociable.

Table 12.5 Mean ratings on selected mood variables, by major activity categories[a]

Activities	Number of observations	Strong-Weak		Active-Passive		Free-Constrained		Excited-Bored		Happy-Sad		Friendly-Hostile		Sociable-Lonely	
		Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Total	542	4.27		4.20		4.22		4.18		4.82		4.75		4.57	
Talk with peers	111	4.34	4	4.32	5.5	4.65	3	4.59	4	5.25	1	5.32	2	5.05	7
Talk with adults	31	4.28	6	4.14	7	4.39	6	4.71	2	5.14	2	5.48	1	4.96	3
Watching TV	80	3.95	11	3.63	10	4.10	8	3.80	9	4.44	10	4.35	10	4.10	10
Games/sports	33	5.48	1	5.58	1	4.94	1	4.78	1	4.85	5	4.39	9	5.09	1
Eating	36	3.97	10	3.57	11	4.31	7	4.09	7	5.06	3	4.89	3	4.79	5
Grooming	39	4.18	7	4.39	3	4.49	5	4.64	3	5.00	4	4.85	4	4.47	6
Walking	34	4.50	2	4.82	2	4.56	4	4.29	5	4.62	9	4.59	7	4.38	7
Work	30	4.41	3	4.34	4	3.93	9	4.00	6	4.28	11	4.28	11	3.70	11
Reading	43	3.98	9	3.70	9	4.71	2	3.70	10	4.53	8	4.62	6	4.17	9
Studying	66	4.16	8	4.11	8	3.62	10	3.97	8	4.78	6	4.47	8	4.30	8
Class	39	4.29	5	4.32	5.5	3.58	11	3.42	11	4.76	7	4.63	5	4.95	4
F values[b]		4.47[c]		5.83[c]		5.54[c]		3.87[c]		2.59[d]		4.35[c]		4.50[c]	

[a] Higher numbers indicate more positive moods
[b] Significance computed by one-way ANOVA, df = 11.531
[c] $p < 0.001$
[d] $p < 0.01$

Discussion

The assumption of this study was that if one could measure how adolescents spend their time during a normal week, why they spend their time as they do, and how they feel about their activities, one would get a clearer idea of the social and psychological forces at this stage of the life cycle. The methodology used was particularly appropriate to study this problem.

In this sample, the most prevalent activity was found to involve conversation with peers, which occurred one-third of the total time. This activity was also the most voluntary and was highly positive in mood. By contrast, work of any kind was rare: only 13 % of the time were *S*s studying, and 5 % of the time were they doing other work. These activities were the least voluntary and were associated with negative moods.

This pattern suggests that both quantitatively and qualitatively the main context of socialization for adolescents is peer interaction. The developmental function of this types of interaction is fairly obvious. Piaget (1965), Sherif and Sherif (1972), and many others have stressed that adolescents evolve autonomy and the behavior appropriate to an egalitarian social order through experiences with peers. The prevalence of talk with agemates over talk with adults can be expected to support the predominance of egalitarian modes of social interaction over hierarchical ones. Yet the fact that adolescents who are talking with peers rate themselves as relatively weak, passive, and unskilled suggests that such an activity may involved conformity to group pressure.

At the same time, interaction restricted to peers is likely to have the negative effect of engendering cohort-specific identification, modes of communication, styles of life, and views of the world, perpetuating the age-based segregation which Bronfenbrenner (1970) and Coleman (1974a) have lamented. On the rare occasions when adolescents participated in activities conducive to the learning of adult roles, they tended to experience strongly negative feelings. To the extent that one must enjoy an activity if one is to develop the intrinsic motivation needed for self-initiated socialization (Brim 1968; Csikszentmihalyi 1975; Smith 1968), the data suggest that the preconditions for self-initiated socialization into meaningful adult roles were conspicuously absent.

The lack of productive activities in the lives of these teenagers does not seem to be compensated for by what school has to offer. Although homework and class were seen as challenging and providing relatively high stakes, they were also seen as constraining and boring.

Another intriguing finding concerns television viewing. Although this is the second most prevalent activity for this sample, adolescents tended to choose it because they had nothing else to do, and when they did they reported feeling worse than when they did anything else.

While the fact that moods concurrent with watching television are consistently below those for other activities justifies labeling them as *negative,* an examination of the pattern of responses suggests that *mindless* is a more apt term. In contrast to

participation in other activities, subjects watching television tended to respond "do not feel either." When watching TV they tended not to feel happy or sad, friendly or hostile, strong or weak, lonely or sociable. Simply put, they did not feel.

Nonfeeling is a characteristic of the sociopathic personality described by Cleckley (1955) and Lykken (1957). We were led to ask whether extended cultivation of this nonfeeling state might be related to sociopathic behavior and personality. As part of this research, subjects' had been administered a self-report delinquency questionnaire, asking whether they had ever engaged in any one of eleven deviant activities, (Several of the items were taken from a questionnaire used by Short and Nye 1958). Seven of the eleven acts were common enough in our sample to be useful for analysis. Subjects were also administered the Maddi Alienation Index (Maddi et al. 1976) and the Jackson Personality Inventory (1965).

Correlation coefficients were computed between these indices and the proportion of times that each individual had watched TV during the sampled week. The amount of television watching was significantly correlated with a tendency to engage in three of the seven "delinquent" acts: vandalism ($r_{pb} = 0.50$, $p = 0.01$); taking small things from stores ($r_{pb} = 0.48$, $\rho = 0.02$); and skipping school ($r_{pb} = 0.40$, $p = 0.06$). It was positively, but not significantly, related to four of five primary scales of Alienation and significantly correlated to the secondary scale of Vegetativeness ($r = 0.41$, $p = 0.05$). Of the 22 scales in the Jackson inventory, it was significantly correlated to Infrequency ($r = 0.47$) and negatively correlated to Affiliation ($r = –0.44$), Nurturance ($r = –0.46$), and Understanding ($r = –0.48$). These findings support the hypothesis that the emotionless state characteristic of TV watching is associated with the development of antisocial behavior and personality.

Although the sample used in this study was not representative and was not meant to produce generalizations about all adolescents, the trends uncovered will probably hold up for other groups of the same age. Our main goal, however, was to show some of the questions that become amenable to more precise inquiry with the experiential sampling method used in this study.

It is our belief that a systemic approach is necessary to understanding adolescents (or any other group of people). Such an approach requires an ecological mapping of *activities* and *experience.* Only by knowing where adolescents channel their attention and what kinds of feedback they receive from the interaction can we begin to understand the evolution of behavior patterns. The experiential sampling method appears to be a promising start in this direction.

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Chapter 13
Experiential Correlates of Time Alone in Adolescence

Reed Larson and Mihaly Csikszentmihalyi

Introduction

Diametrically opposed opinions are held about the psychological value of spending time alone. Thinkers from Petrarch to Rousseau, William Penn to Tillich have praised time alone as a vehicle of self-discovery, creative insight, and spiritual inspiration. Pascal states the case most concisely: "I have discovered that all the unhappiness of men arises from one single fact, that they cannot stay quietly in their own chambers" (cited by Halmos 1952). Recent theoretical work on privacy suggests that voluntary aloneness can have a number of positive attributes (Westin 1967; Altman 1975).

The opposing view regards the source of contemporary man's alienation to be in his physical and emotional isolation from others. Frequent withdrawal of people into a state of aloneness, encouraged by an ideology of privacy and reserve, is seen as the core of the modern problems of loneliness and social disintegration (e.g., Halmos 1952; Aries 1960; Sullivan 1953). The experiences of prisoners and social isolates are a common source of evidence to support this view.

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The disagreement seems to reflect different emphases placed on the motivation for being physically separate from others. The first point of view conceives solitude to be a chosen state productive of creativity and self-affirmation. The second looks at loneliness as an unchosen state leading to depression and alienation. But there are no systematic data describing the effects of aloneness in everyday life, let alone testing different effects of voluntary versus involuntary aloneness.

The arguments of this debate have a magnified relevance for persons at the adolescent stage of the life cycle. It is a time when the option of being alone is first being accepted without anxiety (Coleman 1974). But it is also a time when the influences of peers and family are indispensable to what one is and how one thinks (Costanzo 1970; Sherif and Sherif 1961). It is also a time when the distinction between public and private experience is first being realized (Wolfe and Laufer 1974), and when the existential human condition of aloneness first becomes accessible to thought (Chandler 1975). Adolescents face the developmental tasks of establishing autonomy from parents (Douvan and Adelson 1966), synthesizing a sense of identity and beginning to deal with the issue of intimacy and isolation (Erikson 1968). Intermittent solitary time may be useful or even necessary for these formative processes (Wolfe and Laufer 1974; Ittelson 1974). The time an adolescent spends alone may serve for monitoring growth, experimenting with different selves, dealing with emotional conflicts, and etching out a sense of personal identity. On the other hand, it may be that such time in solitude establishes patterns of isolation and loneliness.

This chapter asks three main questions about the nature of time alone in adolescents' lives. First: How do they experience themselves when they are alone? Is it a strong, active, creative experience or is it more likely to be a weak, passive, despondent one? Second: How does choice mediate the effects of aloneness? Is solitude (or voluntary aloneness) a different experience from loneliness (or involuntary aloneness)? Third: How do adolescents who spend more or less time in this state of aloneness differ? Is spending time alone associated with integration of personality or with alienation from self and others?

The new method of experiential sampling is an ideal source of data for dealing with these types of questions (Prescott et al. 1976; Csikszentmihalyi et al. 1977). It provides close estimates of how much time people spend alone throughout a normal day, and it provides random cross-sections of daily experiences.

Method

Procedure

The data were obtained from a sample of adolescents, each of whom filled out self-report forms at random times during the waking hours of a normal week, the scheduling of self-reports was controlled by one-way radio communication. Each subject carried a pocket-sized electronic paging device on his person for a period

of 1 week. Radio signals with a 50-mile transmission radius were emitted from a central location according to a predetermined random schedule. These signals caused the receivers to make a series of audible "beeps," which served as the stimulus for subjects to complete the self-report forms.

The schedule specified 5–7 signals per day at random times between the hours of 8:00 A.M. and 11:00 P.M. All seven days of the week were included in the schedule. The 42 signals per week were transmitted according to the same random pattern to each subject, although the sequence differed depending on which days of the week a subject started, seven hundred and fifty-three records were collected during the months of February and March, 1976.

Sample

The sample consisted of 25 unpaid subjects obtained through personal contacts by graduate students in a course on adolescence. All lived in the Chicago area. Their ages ranged from 13 to 18, with a median age of 14. There were 16 girls and 9 boys. Sixteen of the subjects were white; 6 were black; 3 were of Spanish-American descent. A substantial minority of the subjects, 40 %, lived with only one parent; the rest lived with both. All subjects had at least one sibling. Socio-economic status of the guardian was coded according to Hollingshead's two-factor scale. The sample was skewed toward the highest class (32 %), with only 3 subjects (12 %) in the lowest class. The intermediate classes contained 5, 4, and 5 subjects respectively. The 25 subjects filled out a total of 753 self-report records. The range of completed records was 21–38 records per person, with an average of 30. Subjects responded to approximately 89 % of the signals by filling out records. The data set does not include 11 % of the sample activity. Informal reports suggest that some subjects turned the receivers off or failed to respond when sleeping, taking a test, engaging in a sport such as swimming where the receiver could not be kept on their person, or when they just did not feel like filling out a form, Omissions also occurred when subjects left the receiver or the forms at home, and when subjects travelled beyond the signal transmission range.

The Self-Report Form

Subjects were provided with bound booklets of 50 identical forms. Each form consisted of two sides of a page containing items that required approximately 2 min to complete.

(a) *Time Alone.* At the time of the signal this was established by the question, "Were you: alone, with friends or acquaintances, with family, with strangers,

other." The percentage of an individual's records which had been marked "alone" served as an estimate of the amount of time he or she typically spent alone. A substantial ($r = 50$) correlation between the amount of time subjects spent alone in the first and last half of the study period indicates that this is a relatively stable feature of their life style.

(b) *Emotional States.* A group of 13 items solicited semantic differential ratings of mood and physical state. Subjects were asked to rate which of two opposite adjectives best described their state at the time they were signaled. The ends of the 7-point scale corresponded to extreme opposing states, such as "hostile" versus "friendly," "happy" versus "sad." For each individual a mean rating was computed for each of these 13 scales. These means served as indices of subjects' average daily emotional state.

(c) *Involvement.* Another group of items was designed to measure the quality of the subjects' involvement in the situation. Ten-point scales from "low" to "high" were provided for rating "challenges of the activity," "your skills in the activity," "Do you wish you had been doing something else?" and "Was anything at stake for you in the activity?" Similar 10-point scales were provided for rating "How well were you concentrating?" "Was it hard to concentrate?" "How self-conscious were you?" and "Were you in control of your actions?" As with the 13 mood scales, the mean rating was computed for each of these items, for each individual, to serve as indices of the average quality of their interaction with the environment.

(d) *Activities.* The self-report form contained open ended questions asking subjects where they were when they were signaled and what they were doing. Responses to these questions were coded into a limited number of inclusive categories of environments and activities. For roughly two-thirds of the records subjects were coded for a secondary as well as a primary activity.

(e) *Motivation.* Subjects were also asked "why were you doing this?" to which they were to respond by checking either I had to do it: Yes–No" or "I wanted to do it: Yes–No." The item "do you wish you had been doing something else?" provided a third assessment of the motivation for their current behavior. Though none of these three items specifically asks whether the individual wanted to be alone or with others, they are used here as indicators of whether aloneness was voluntary or involuntary. Of course self-reports are far from ideal indices of motivation (Nisbett and Valins 1972; Ross 1977) and a neat division of daily actions into those which are voluntary and involuntary might not reflect the way daily choices are actually made. Despite their limitations, these repeated measures of motivation provide the best available index of whether a person was alone by choice or by necessity.

(f) *Alienation.* Subjects were administered the Maddi Alienation Index (Maddi et al. 1976). This index provides subscores for five domains of alienation and a total alienation score.

Results

The Context of Time Alone in Adolescence

During the study period, this group of adolescents spent nearly a third (29 %) of their waking time alone. 44 % of the records were marked "with friends and acquaintances" and 20 % were marked "with family." The responses "with strangers" and "other" were marked the remaining 7 % of the time.

Several activities were reported more often alone than with others (Table 13.1a). Free-floating thought (fantasizing, day-dreaming, talking to self, thinking about past or future) was more commonly recorded as an activity when subjects were alone. Involvement in forms of passive entertainment other than watching T.V. (listening to records or the radio, reading newspapers, magazines, or books) occurred more frequently when subjects were alone. Sleeping and personal grooming were also associated with being alone. These data give a clear impression that, when by himself, an adolescent is more likely to be engaged in reflection or involved in the activities such as passive entertainment and grooming, which are compatible with free-floating thought.

As Table 13.1b shows, the bedroom was the most common context for this solitude. Table 13.1c suggests that activities alone were no more likely to be involuntary than activities with others. Subjects were alone most frequently between the hours of 5:00 and 6:00 P.M. and the hours of 9:00 and 11:00 P.M. There were no marked differences among the days of the week in the proportion of time spent alone.

The Experience of Time Alone in Adolescence

There are substantial differences between subjects' self-ratings when they are alone and when they are with others (Table 13.2). The most consistent differences are on the 13 mood items. Alone, respondents are much more lonely and hostile. They are significantly less happy and less alert. Further, they rate themselves as weaker and more passive. Only four mood items: relaxed-tense, trusting-suspicious, creative-dull, and free-constrained, fail to reflect the negative tone of the experience of being alone.

The quality of involvement items qualify this picture somewhat. Respondents report feeling less self-conscious, having higher skills, and having less difficulty concentrating when alone.

An issue raised by Table 13.2 is whether this pattern of negative moods is due to aloneness per se or to other factors associated with aloneness. The following analyses consider the contribution of these other factors. Table 13.3 reports how the three most significant moods change when respondents are alone or with others in different activities, environments, and motivational states. It shows that the

Table 13.1 Distribution of time alone by activities, by environments, and by motivational conditions

	No. of records	Percentage of time alone (221 records)	Percentage of time w/ others (532 records)	No. of persons with higher rate alone	No. of persons with higher rate w/others	Binomial sign test significance
a. Activity						
Free floating thought	87	21	8	18	6	0.03
Watching TV	105	16	13	8	16	0.15
Passive entertainment other than TV	94	21	9	15	5	0.04
Games or sports	40	1	7	2	10	0.04
Talking w/others	295	10	51	0	25	0.001
Eating	43	8	5	2	22	0.001
Grooming	56	17	4	15	6	0.08
Sleeping	37	10	3	15	3	0.01
Walking	44	8	5	11	5	0.21
Work	42	7	5	5	9	0.42
Studying	96	12	13	9	14	0.40
Other	300	$\frac{21}{158}$[a]	$\frac{48}{171}$[a]	11	11	1.00
b. Environment						
Bedroom	157	40	10	23	2	0.001
Other parts of home	210	32	27	9	13	0.32
School	214	8	37	1	24	0.001
Other public (includes friend's home)	168	$\frac{13}{100}$	$\frac{26}{100}$	6	18	0.03
c. Motivation						
"I had to do it" ("Yes" response)	233[b]	31	31	10	13	0.52
"I wanted to do it" ("Yes" response)	538[b]	77	70	12	10	0.83
I wish I were doing something else (rating of 5 or greater)	309	38	42	10	13	0.52

[a] Includes secondary activities, which were reported for 65 % of the 753 records
[b] In some records, both choices were checked

association of negative mood to aloneness holds within most activities, particularly for passive entertainment, eating, walking and studying. But being alone appears not to be related to mood when subjects were thinking, talking, grooming, or

Table 13.2 Ratings alone compared to ratings with others[a]

	Mean score[b] ($N = 24$)[c]		t	P
	Alone	With others		
Moods[d]				
Friendly (hostile)	4.26	4.78	3.89	0.001
Alert (drowsy)	4.10	4.62	3.09	0.005
Happy (sad)	4.40	4.78	3.06	0.006
Relaxed (tense)	4.58	4.34	−1.57	0.13
Trusting (suspicious)	4.15	4.16	0.11	0.91
Cheerful (irritable)	4.36	4.34	1.42	0.17
Strong (weak)	4.03	4.31	1.86	0.07
Active (passive)	3.90	4.28	2.05	0.05
Sociable (lonely)	3.93	4.71	5.95	0.001
Creative (dull)	4.00	4.12	0.75	0.46
Satisfied (resentful)	4.16	4.37	1.61	0.12
Free (constrained)	4.28	4.14	−1.09	0.29
Excited (bored)	3.86	4.09	1.59	0.12
Quality of involvement in the situation[e]				
Challenges	2.97	3.26	0.77	0.45
Skills	5.87	5.24	2.20	0.04
Stakes	2.09	1.95	0.47	0.64
Concentration	4.30	4.56	0.85	0.40
Hard to concentrate	1.79	2.35	1.76	0.09
Self-conscious	1.97	2.82	3.44	0.002
Control	6.25	6.83	1.90	0.07

[a] Entries are averages of the mean for Individuals
[b] The higher mean indicates more positive average mood
[c] One subject, who was never alone, is not included in these analyses
[d] Multivariate: $F = 5.61$ (13, 9), $p = 0.007$ (Bock 1975)
[e] Multivariate: $F = 4.28$ (7, 15), $p = 0.009$

working. The strong positive moods associated with talking (on the phone) when physically alone suggests that conceptually this condition would be classified more appropriately as being with others.

Table 13.3b also shows that within specific environments the association between aloneness and negative moods is generally sustained. Regardless of environment, subjects report being less hostile and lonely if they are with others. The trend for alert-drowsy is in the same direction, though less strong.

The mediating effects of motivational states are rather complex but consistent (Table 13.3c). They can be summarized as follows:

(a) When a person is doing something by choice, his or her moods are more positive than when the activity is forced.
(b) When a person is engaged in a voluntary activity, his or her moods are significantly more negative alone than with others.

Table 13.3 Ratings alone by activity, by environment, and by motivational conditions[a]

	No. of persons	Friendly ratings				Alert ratings				Sociable ratings			
		Alone	w/others	*t*	*p*	Alone	w/others	*t*	*p*	Alone	w/others	*t*	*p*
a Activity													
Free floating thought	15	4.67	4.68	0.02	0.98	4.32	4.44	0.31	0.76	3.80	4.25	1.17	0.26
Watching TV	14	4.43	4.39	−0.12	0.90	3.78	4.68	2.40	0.03	3.67	4.07	1.98	0.07
Passive entertainment other than TV	13	4.46	5.00	2.17	0.05	3.74	4.81	2.13	0.05	3.78	4.70	2.09	0.06
Talking	14	5.57	5.16	−1.77	0.10	5.04	4.72	−0.79	0.44	4.93	4.98	0.12	0.90
Eating	7	4.17	5.46	2.85	0.03	3.86	4.32	0.64	0.54	3.19	5.46	5.98	0.001
Grooming	7	4.62	5.43	1.72	0.14	4.83	4.79	−0.04	0.97	4.52	4.48	−0.06	0.95
Walking	5	3.60	4.77	2.72	0.05	3.25	4.50	2.67	0.06	3.45	4.40	1.36	0.24
Work	5	4.80	4.35	−1.96	0.12	4.53	4.35	−0.49	0.65	3.30	3.70	1.09	0.34
Studying	12	4.14	5.03	4.72	0.001	4.01	4.83	2.13	0.06	3.63	5.23	3.60	0.004
b Environment													
Bedroom	15	4.30	4.75	2.04	0.06	3.91	4.01	0.23	0.82	3.74	4.27	2.34	0.03
Other parts of home	16	4.66	4.92	1.23	0.24	4.61	4.50	−0.64	0.53	3.87	4.61	3.12	0.008
School	14	4.72	4.92	0.69	0.50	4.77	5.13	95	0.36	4.31	4.74	1.08	0.30
Other public	13	4.63	5.29	1.85	0.09	3.97	4.75	1.78	0.10	3.85	5.02	2.53	0.03
c Motivation													
Had to do it:													
Yes	21	4.37	4.69	1.74	0.10	4.33	4.69	1.14	0.27	4.00	4.80	3.85	0.001
No	21	4.40	5.02	3.36	0.003	4.29	4.66	2.13	0.05	3.96	4.75	6.05	0.001
Wanted to:													
Yes	23	4.43	4.95	4.68	0.001	4.24	4.78	2.90	0.008	4.02	4.77	6.12	0.001
No	14	3.95	4.43	1.43	0.18	4.01	4.30	0.67	0.51	3.62	4.63	2.41	0.03
Wish doing something else:													
Yes	23	4.46	4.49	0.16	0.87	4.20	4.40	0.84	0.41	4.03	4.50	2.89	0.009
No	22	4.11	5.05	4.28	0.001	4.27	4.93	2.56	0.02	3.79	4.96	5.76	0.001

[a] Entries are averages of the means for all individuals who reported the activity, environment or motivational condition at least once alone and once with others

Table 13.4 Transition states[a]

	Transition from being w/others to being alone				Transition from being alone to being w/others			
	Mean score ($N = 37$)		t	p	Mean score ($N = 28$)		t	p
	w/others	Alone			Alone	w/others		
Moods								
Friendly	5.19	4.57	−2.44	0.02	4.44	4.89	1.69	0.10
Alert	4.94	4.11	−2.28	0.03	4.30	4.39	2.17	0.04
Happy	5.27	4.68	−2.74	0.01	4.67	4.93	1.16	0.26
Relaxed	4.24	4.16	−0.25	0.80	4.63	4.29	−1.15	0.26
Trusting	4.22	4.16	−0.26	0.79	4.44	4.37	0.27	0.79
Cheerful	5.00	4.54	−1.54	0.13	4.59	4.59	0.00	1.00
Strong	4.36	3.93	−1.35	0.19	4.30	4.52	0.95	0.35
Active	4.79	4.05	−1.92	0.06	4.04	4.26	0.65	0.52
Sociable	4.89	3.51	−5.53	0.001	4.00	4.61	1.87	0.07
Creative	4.50	4.11	−1.21	0.23	3.89	4.19	1.22	0.23
Satisfied	4.80	4.16	−3.10	0.004	4.33	4.19	−0.50	0.62
Free	4.62	4.32	−1.00	0.32	4.26	4.11	−0.68	0.50
Excited	4.30	4.00	−0.91	0.37	4.04	4.41	1.73	0.10
Quality of involvement								
Challenges	3.97	3.20	−0.94	0.35	2.00	3.50	2.18	0.04
Skills	6.14	6.29	0.26	0.80	5.82	4.64	−1.73	0.09
Stakes	1.49	2.17	3.24	0.22	1.07	1.67	1.11	0.27
Concentration	5.05	4.57	−0.86	0.39	3.82	5.43	3.40	0.002
Hard to concentrate	1.95	1.86	−0.17	0.86	1.68	1.92	0.63	0.53
Self-conscious	2.92	1.65	−2.66	0.01	1.71	3.00	1.83	0.08
Control	6.65	6.57	−0.18	0.86	7.07	7.39	0.58	0.56

[a] Only those pairs of self-reports are included which occurred within 120 min of when a subject went from being with other to being alone, or vice versa

(c) When a person is engaged in an involuntary activity, moods are not affected by being alone or with others.

These relationships, however, do not fully cover the range of motivation and affect which lead to a person's decision to be alone or with others. It is possible that negative moods lead to a choice of being alone, rather than aloneness to negative moods. This issue can be dealt with by examining changes of moods in a time series. Table 13.4 presents data on 37 pairs of sequential records where subjects went from being with others to being alone and 28 pairs where they went from being alone to being with others, This sample includes all such pairs of transition records which were obtained within 120 min of each other. They include a representative range of persons (20 in the first case, 17 in the latter), times of day, activities, environments, and motivational conditions. In comparison to Table 13.2, it can be seen that moods are no lower than usual prior to being alone; if anything, they tend to be more positive. Table 13.4 shows that it is after

transition to being alone that moods drop. The items reflecting the biggest change (e.g., happy-sad, sociable-lonely, self-conscious) are the same items found to be strongly associated with aloneness in Table 13.2. The implication is that negative moods alone are a result of being alone, rather than aloneness being a product of negative moods, Consistent with this interpretation, the right side of Table 13.4 shows self-ratings improving when subjects go from aloneness to being with others.

Another factor which might produce differences in self-ratings between times alone and times with others is the method itself. The pager is a novel stimulus to a subject's friends, family, and other associates. Initially it may generate curiosity and special interest among them, which could conceivably affect a subject's response. If this artifact were a significant factor it could be expected that the differences in self-ratings alone and with others would disappear or be substantially reduced by the second half of the week, when the novelty had worn off. However, this is not the case. In the second half, moods alone remain significantly different from moods with others, Multivariate $f(13, 10) = 4{,}27$, $p < 0.02$, and ratings of quality of involvement alone and with others are also significantly different, Multivariate $f(7, 16) = 5.52$, $p < 0.003$.

Individual Differences: Correlates of Time Spent Alone

Major differences existed between individuals in the amount of time they spent alone. One person was never alone; at the other extreme one individual was alone for 57 % of the times sampled. The mean and median percentage of time alone was 29 %. There were no sex differences in these proportions. However, significantly more time was spent alone by older ($p < 0.05$) and higher socioeconomic status ($p < 0.04$) subjects. Those spending differing proportions of time alone showed approximately the same profiles of activities alone, environments at aloneness, and time of day of aloneness (as in Table 13.1).

The percentage of time which subjects spent alone was found to be related to other aspects of their life styles. It is intrinsically related, of course, to the amount of time spent with others. The data suggest that the time spent alone is primarily obtained at the expense of time spent with family rather than time with friends, Time alone has a high negative correlation to time "with family" ($r = -0.52$, $p < 0.01$), while being less related to proportion of time "with friends or acquaintances" ($r = -0.32$, n.s.). Subjects who spent more time alone also spent less time talking with peers ($r = -0.43$), $p < 0.05$), less time playing sports or games ($r = -0.31$, n.s.), and less time in non-school public environments ($r = -0.42$, $p < 0.05$). However, these last three relationships may be partially attributable to SES and age, as is indicated by the reduced correlations when these variables are controlled (respectively: $r_{\text{Partial}} = -0.28$, n.s.; $r_{\text{Partial}} = -0.18$, n.s.; $r_{\text{Partial}} = -0.33$, n.s.).

Table 13.5 Curvilinear relations of proportion of time spent alone and alienation

	Point of inflection of "U"-shaped curve (low point of curve) (%)	*F* statistical significance (*df* = 1, 22)
Work alienation	35	5.97**
Alienation from social institution	44	0.65
Interpersonal alienation	36	7.01**
Family alienation	32	4.74*
Self alienation	33	4.96*
Total alienation	37	4.89*

* $p = 0.05$
** $p = 0.025$

An unexpected set of findings emerged when the characteristics of persons who spent much time alone were examined. Table 13.2 had shown that being alone was generally a negative experience. Yet adolescents who spent more of their time alone tended to report higher average moods over-all. Ten of the 13 mood variables were positively correlated with proportion of time alone, four at a significant level. When controlled for age and SES, adolescents who spent more time alone were found to rate themselves significantly more friendly ($r = 0.46$) and more excited ($r = 0.37$) than adolescents who spent less time alone.

Correlations between alienation and amount of time spent alone were not significant, but inspection of the scattergram suggested a curvilinear distribution. To test this relationship the data were fitted to a quadratic equation of the form,

$$y = \beta_0 + \beta_1 x + \beta_2 x^2$$

where x is the proportion of time an individual spent alone, y is the person characteristic of interest (e.g., alienation) and β_0, β_1, and β_2 are constants found to minimize squared error. An F test was used to evaluate whether these parabolic functions were a significantly better fit to the data (explained more variance in y) than the simple linear functions represented by Pearson product moment correlations.

All fitted curves were found to be U-shaped, Subjects at the extremes, those who spent no time alone and those who spent very much time alone were the most alienated. Significant curvilinear trends were found for 4 out of 5 alienation subscales (Table 13.5). The clearest relationship is shown between "interpersonal alienation" and proportion of time spent alone. The curves suggest that adolescents who spend optimal intermediate amounts of time alone (32–37 %) are the least alienated.

Table 13.6 attempts to capture unique characteristics of this group of adolescents who spent an intermediate amount of time alone. However, it shows that they are as likely to be involuntarily compelled in their activities as are other subjects—whether they are alone or with others. This suggests that the low aloneness and high aloneness of the other two groups of subjects is not a result of forces beyond their control. Further, the intermediate aloneness group does not differ from the

Table 13.6 Characteristics of subjects who spent different proportions of their time alone

	Less than 25 % ($N = 8$)	Between 25 and 35 % ($N = 9$)	More than 35 % ($N = 7$)	Repeated measures ANOVA	
Motivations[a]					
Had to: Yes					
Alone	38	34	33	Column effect[c]	$F = 0.00, p = 0.95$
w/others	35	41	26	Row effect[d]	$F = 0.45, p = 0.64$
				Interaction	$F = 0{,}63, p = 0.54$
Wanted to: Yes					
Alone	81	80	73	Column effect	$F = 0.15, p = 0.70$
w/others	82	74	74	Row effect	$F = 0.40, p = 0.68$
				Interaction	$F = 0.29, p = 0.75$
Moods[b]					
Friendly					
Alone	3.45	4.62	4.71	Column effect	$F = 16.36, p = 0.001$
w/others	4.32	4.93	5.10	Row effect	$F = 4.98, p = 0.02$
				Interaction	$F = 1.88, p = 0.18$
Alert					
Alone	3.67	4.72	4.33	Column effect	$F = 9.41, p = 0.006$
w/others	4.48	4.70	4.68	Row effect	$F = 0.86, p = 0.44$
				Interaction	$F = 0.78, p = 0.47$
Sociable					
Alone	3.69	4.05	4.07	Column effect	$F = 33.64, p = 0.001$
w/others	4.49	4.94	4.67	Row effect	$F = .092, p = 0.41$
				Interaction	$F = 0.39, p = 0.68$

[a] Entries are averages of percentages
[b] Entries are averages of means
[c] Alone versus w/others
[d] Proportion of time spent atone (i.e. 0–25; 26–35; 36 % and above)

others in their reported experience alone. Relative to time with others, they are not significantly more friendly, alert, or sociable alone. They also do not differ in age, sex or SES from the other groups.

Discussion

Schopenhauer addressed the controversy between those idealizing aloneness and those idealizing sociability with an analogy to shivering porcupines. When they are too close these porcupines suffer from each others' pricks, and when too far

apart they suffer from cold. A medium distance provides a moderate measure of freedom from both unpleasantnesses (cited by Halmos 1952). Although this analogy oversimplifies the pattern found, it nicely expresses its paradoxical nature and the inadequacy of extreme points of view.

It is worth noting that those who have commented on the value of privacy which is an overlapping but separate concept from the one used here (Altman 1975; Ittelson 1974), have also rejected extreme points of view, arguing for an optimal intermediate amount of privacy (Altman 1975; Schwartz 1968; Goffman 1956; Bates 1964).

The data suggest that adolescents have more negative emotional states alone than with others. They are less happy, less alert, and more lonely. Further analysis indicates that this negative state is not a result of the activities they do alone or the environments in which aloneness occurs, but appears to be a direct result of aloneness per se.

Adolescents seem to choose to be alone as often as they choose to be with others. While the data do not capture the full dimensions of choice, they suggest that being alone is likely to be voluntary. This choice does not appear to be a result of a preexistent negative mood. Emotional states prior to being alone are as high as at any other time. The drop in mood occurs after one leaves the presence of others. And, surprisingly, it is at times when aloneness is associated with a voluntary choice of activity that this drop in mood is greatest.

Why adolescents might choose this more negative state is suggested by comparisons between subjects. Those who spend at least some proportion of time alone are less alienated from themselves and others. But much time spent alone, like no time spent alone, is associated with greater alienation.

The paradox is that a negatively experienced state, aloneness, is associated with a positive trait, lower alienation. Aloneness appears to be analogous to a medicine which tastes bad, but leaves one more healthy in the long run. The negative moods, therefore, may be a superficial veneer for more important processes. The data suggest what these may entail. A person alone is less self-conscious and has a higher perception of his or her own skills. Being alone is a time when mental reflection is more common—an activity for which the negative differential in moods does not hold. Grooming and listening to music, which may also be reflective activities, are also more frequent alone.

These findings suggest that potential positive features of aloneness, identified by experimental and theoretical literature, are being exploited in people's daily lives. Aloneness has been found under some conditions to enhance creativity (Taylor et al. 1958) and memory (Zuckerman et al. 1968). Theoretical work on privacy proposes that aloneness provides opportunities for emotional release, for a reflective integration of one's life, and for experimentation with different selves (Westin 1967; Altman 1975; Ittelson 1974). More frequent mental reflection and related activities alone indicate that this time might be used for integrative thought and rehearsal of different selves. These opportunities have a special value for adolescents who face the developmental task of establishing autonomous identities.

Adolescents who spend very little time alone could be deprived of these opportunities, and as a result might engage in fewer integrative thought processes, this being reflected in greater alienation. At the other extreme, adolescents who spend too much time alone might lack affiliative and socializing contact with others, which also results in greater alienation. While this interpretation seems most parsimonious with the findings, additional evidence is clearly needed before alternate causal or reciprocal interrelationships between these variables can be excluded.

Summary

This study has revealed that the experience of aloneness in the daily lives of adolescents cannot be simply characterized as a voluntary positive state or an involuntary negative state. It is no more associated with choice or compulsion than is being with others. The data indicate that the emotional experience of time alone is generally more negative. However, it also suggests that this time is used for mental reflection, which we have inferred serves an important integrative function, at least for adolescents, if not for adults. The value of this experience alone is suggested by the finding that those adolescents who spend an intermediate amount of their time alone during a typical week are least alienated.

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Chapter 14
Intrinsic Rewards in School Crime

Mihaly Csikszentmihalyi and Reed Larson

The systemic structure of a school provides opportunities for both prosocial and antisocial behavior. Actions in a school may be motivated by (1) the extrinsic mechanisms of discipline and grades, (2) the means-end relationship of school behavior to students' long-term goals, and (3) the immediate intrinsic satisfactions obtainable in different activities. This chapter treats the third type, intrinsic motivation. Using previous research, the authors propose that the state of enjoyment occurs when a person is challenged at a level matched to his level of skills. According to the model, the experience of meetable challenges requires the perception of a constrained set of possible actions, clearly defined goals, and opportunities for unambiguous feedback. The system of rules in a formal game provides these prerequisites. The systemic structure of a school can also provide the conditions of enjoyable involvement. Ideally, learning should involve systemic involvement in sequences of challenges internalized by students. However, evidence indicates that such involvement is rare and is often subverted by the school itself. Without such opportunities, antisocial behavior provides an alternate framework of challenges for bored students. Disruption of classes, vandalism, and violence in schools are, in part, attempts by adolescents to obtain enjoyment in otherwise lifeless schools. Restructuring education in terms of intrinsic motivation would not only reduce school crime but would also accomplish the goal of teaching youths how to enjoy life constructively.

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Enjoyment and the Survival of School Systems

The problem of school crime can be conceptualized at the most abstract level as a systemic problem. Each school is a social system which exists only insofar as people are motivated to act according to the patterns of constraints appropriate to the system. Unless the community is motivated to pay taxes, the teacher to teach, the janitors to keep the plant in order, and the students to abide by the rules of behavior required to make learning possible, institutions of learning will cease to exist. To the extent that the school is unable to constrain the relevant behavior of students, its existence as a functioning system is in jeopardy.

In this chapter we are interested primarily in the students' lack of motivation to accept the constraints of school systems. This lack translates in practice into the phenomenon of school crime, as manifested in acts of vandalism, burglary, larceny, assault on other students and on teachers, and so on.[1] The question is why increasing numbers of students act to subvert the systemic constraints which make the existence of schools possible.[2] We shall approach this issue from the viewpoint of motivation theory.

People accept the constraints of a social system for one of three possible reasons, or a combination thereof. In the first place, a system may compel constraint through a combination of extrinsic rewards and deterrents. The "stick-and-carrot" mechanism of social control works by convincing persons that their survival or comfort is best served if they accept the system's constraints. Schools rely on grades for rewards and on various disciplinary measures for deterrents, and in this they are supported by the more informal social controls embodied in public opinion and especially parental attitudes.

A second set of reasons why students may accept the constraints of school (and thereby in effect become part of the system) has to do with the perceived means-end relationship between their present belonging in the system and their future achievement of a desired goal. As long as students believe that by being "good students" they get closer to valued statuses—of financial affluence, power, self-esteem—they will be motivated to comply with the constraints of the school.

The third and final group of reasons that may motivate a person to belong to a system, and thereby lead him to accept its constraints, may be defined as "intrinsic motivation." When people enjoy the activity which a system makes possible, they spontaneously abide by its constraints. For instance, basketball as an action system requires the development of certain skills and the observation of specific rules both' on and off court. These constraints are usually accepted by young people

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[1] U.S. Senate Subcommittee on the Judiciary, *Our Nation's Schools—A Report Card: "A" in School Violence and Vandalism,* Preliminary Report of the Subcommittee to Investigate Juvenile Delinquency, Committee Print, 94th Cong., 1st sess. (Washington, D.C.: Govt. Printing Office, 1975).

[2] Michael Marvin et al., *Planning Assistance Programs to Reduce School Violence* (Philadelphia: Research for Better Schools, Inc., 1976).

even in the absence of extrinsic rewards or deterrents, and despite the fact that playing basketball will not help them to reach a desirable future goal. The activity becomes an end in itself because it provides an immediate experience which is intrinsically rewarding.

The increase in school crime could be attributed to failures in any and all of these three motivating systems. It could be argued that the extrinsic reward-punishment mechanisms which kept students more or less in line are becoming less effective. Or it could be argued that for an increasing number of students the means-end relationship between education and desirable future goals is becoming less believable. Both of these arguments are probably sound. But here we shall focus on the third possibility, which is usually ignored: namely, that schools are less fun, that intrinsic motivation for becoming educated is decreasing, and that "criminal" activities are providing more enjoyment to students than what schools have to offer.

A favorite concept of scholars studying delinquency is *short-run hedonism,*[3] which, in effect, dismisses people's need for enjoying what they do. This, in our opinion, is unwise. It might be better to recognize that, lacking clear extrinsic or means-end motivational supports, the most functional response for a person is to do what is most enjoyable. Thus, if we wish students to accept the rules on which schools are based, we need to understand what students enjoy, so that schools may provide the kind of intrinsically motivating experiences which now are being sought out in contexts disruptive to the school system. This approach is certainly not new. Almost twenty-four centuries ago Plato recognized that the main goal of a sound education is to train people to find "pleasure and pain in the right objects."[4] It is all the more surprising how little headway we have made in translating this goal into actuality.

Crime and Enjoyment

School crime occurs when a person acts in terms of the constraints of an antisocial system rather than the constraints of the school system. At that point he is, in effect, identifying himself through his actions with a criminal system, and he ceases to belong to the system "school." In the recent literature, this decision is usually explained in terms of delinquent subculture pressures placed on the person[5]: A student resorts to criminal action in order to gain or keep his status in a peer group.

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[3] See Fred Strodtbeck and James Short, "Aleatory Risks versus Short-Run Hedonism in Explanation of Gang Action," *Social Problems,* Fall 1964, pp. 127–140; and Albert Cohen, "The Delinquent Subculture," in *The Sociology of Crime and Delinquency,* 2nd., Marvin Wolfgang, Leonard Savitz, and Norman Johnston, eds. (New York: Wiley, 1970).

[4] Plato, *Laws,* II; see also Aristotle, *Ethics,* II, 3.

[5] See Robert Sutherland and Donald Cressey, *Criminology,* 9th ed. (Philadelphia: Lippincott, 1974); and Albert Cohen, *Delinquent Boys* (New York: Free Press, 1955).

There is no question that socialization into a deviant subgroup is an important reason for rejecting the school's constraints. However, to understand why a person will choose to identify with a deviant system, it is necessary to explain the motivation for delinquent action. The argument proposed here is that part of the motivation for crime is intrinsic; in other words, for many adolescents criminal acts are more enjoyable than behaviors available in socially sanctioned settings. Unless we understand why this is so, we will be unable to build intrinsic motivation into school activities, and therefore we will lose the most efficient deterrent to antisocial behavior that a social system can have.

The fact that delinquency, at least in its early stages, is an enjoyable activity has been noted by many observers. Frederic Thrasher thought stealing the result of a "sport motive" rather than desire for material gain[6]; Henry McKay saw in delinquency a form of play[7]; Paul Tappan concluded that "the juvenile property offender's thefts, at least at the start, are usually 'for fun' and not for gain."[8] More recently, the same conclusion was reached by Albert Cohen:

> In homelier language, stealing "for the hell of it" and apart from considerations of gain and profit is a valued activity to which attaches glory, prowess and profound satisfaction.[9]

Intrinsic motivation presumably plays an even larger role in affluent suburban school crime. In a study conducted by Jerry Tobias, middle- and upper-middle-class offenders mentioned boredom as a major reason for engaging in delinquent acts, while they usually discounted the need for money as a contributing factor.[10] The desire for kicks, excitement, adventure, pleasure, and fun was the overwhelming reason given by delinquents for their acts.

Despite the fact that many researchers have recognized the role enjoyment plays in delinquency, the connection between the two has not been investigated thoroughly. This is due, at least in part, to the lack of a functional theory of enjoyment, and to the widely shared assumption that only youths with peculiar personality traits enjoy crime. The purpose of this paper is to present a general theory of enjoyment and to argue that criminal acts are perfectly suited to provide enjoyment to normal persons who lack access to alternatives.

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[6] Frederic Thrasher, *The Gang* (Chicago: University of Chicago Press, 1936).

[7] Henry McKay, "The Neighborhood and Child Conduct," *Annals of the American Academy of Political and Social Science,* January 1949, pp. 32–41.

[8] Paul Tappan, *Juvenile Delinquency* (New York: McGraw-Hill, 1949).

[9] Cohen, "The Delinquent Subculture," p. 244.

[10] Jerry Tobias, "The Affluent Suburban Male Delinquent," *Crime and Delinquency,* July 1970, pp. 273–279.

A Theory of Enjoyment

In the past decade, there has been a resurgence of interest in the topic of intrinsic motivation. Two partially converging theoretical approaches have been most influential in explaining the sources of the enjoyment people derive from certain activities. The first approach, based on the neuropsychological models of Daniel Berlyne,[11] Donald Hebb,[12] and Joseph Hunt,[13] assumes that there is an optimal arousal level which the organism seeks to maintain. When stimulation is too monotonous, a person will be motivated to vary environmental input; when stimulation is excessively varied, the motivation is to reduce input variability. A person in the optimal arousal range will find the experience intrinsically rewarding.[14]

A second approach with wide currency has grown out of the work of Robert White[15] and Richard de Charms.[16] The emphasis here is on the concept of competence, control, personal causation. If a person perceives his acts as voluntary, the action will be experienced as qualitatively different from acts which are perceived to be controlled by an outside agency. When action is attributed to extrinsic causes, extrinsic contingencies are necessary to sustain it. Recent work by Arie Kruglanski,[17] Mark Lepper and David Greene,[18] and others[19] has shown the power of intrinsic motivation in experimental settings and at the same time has demonstrated how fragile such motivation is: An enjoyable activity can be transformed into a chore simply by a few cues which suggest to the person that his actions are controlled from outside.

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[11] Daniel E. Berlyne, *Conflict, Arousal, and Curiosity* (New York: McGraw-Hill, 1960).

[12] Donald O. Hebb, "Drive and the CNS," *Psychological Review*, July 1955, pp. 243–252.

[13] Joseph McVicker Hunt, "Intrinsic Motivation and Its Role in Psychological Development," in Nebraska *Symposium on Motivation*, David Levine, ed. (Lincoln, Neb.: University of Nebraska Press, 1965).

[14] Michael Ellis, *Why People Play* (Englewood Cliffs, N.J.: Prentice-Hall, 1973); and Corinne Hutt, "Specific and Diversive Exploration," in *Advances in Child Development and Behavior,* vol. 5, Hayne W. Reese and Lewis P. Lipsitt, eds. (New York: Academic Press, 1970).

[15] Robert White, "Motivation Reconsidered: The Concept of Competence," *Psychological Review,* September 1959, pp. 297–333.

[16] Richard de Charms, *Personal Causation* (New York: Academic Press, 1968); and Richard de Charms, *Enhancing Motivation: Change in the Classroom* (New York: Irvington, 1976).

[17] Arie W. Kruglanski, "The Endogenous-Exogenous Partition in Attribution Theory," Psychological *Review,* November 1975, pp. 387–406.

[18] Mark R. Lepper and David Greene, "Turning Play into Work: Effects of Adult Surveillance and Extrinsic Rewards on Children's Intrinsic Motivation," *Journal of Personality and Social Psychology,* March 1975, pp. 479–486.

[19] David Greene and Mark R. Lepper, eds., *The Hidden Costs of Reward* (New York: L. Erlbaum Associates, in press).

A third model of enjoyment, which is in some respects a synthesis of the two mentioned above, has been developed by the author.[20] In a series of studies begun 4 years ago, several groups of people were interviewed, people who devote much time and energy to activities that have few extrinsic rewards and lead to no future goal—for example, chess masters, rock climbers, dancers, and athletes.[21] Their description of how it feels to engage in these activities agreed on a few central points, leading to a theory which describes the experience of enjoyment and its preconditions.

Briefly, an activity seems to be enjoyable when a person perceives that his capacity to act (or skills) matches the opportunities for action perceived in the environment (or challenges). In this balanced state of interaction—which appears to be the subjective counterpart of the optimal arousal state—people find themselves in a peculiar dynamic experience which we call the flow state.

Flow is described as a condition in which one concentrates on the task at hand to the exclusion of other internal or external stimuli. Action and awareness merge, so that one simply does what is to be done without a critical dualistic perspective on one's actions. Goals tend to be clear, means are coordinated to the goals, and feedback to one's performance is immediate and unambiguous. In such a situation, a person has a strong feeling of control—or personal causation—yet, paradoxically, ego involvement is low or nonexistent, so that one experiences a sense of transcendence of self, sometimes a feeling of union with the environment. The passage of time appears to be distorted: Some events seem to take a disproportionately long time, but, in general, hours seem to pass by in minutes.

The flow experience is why games, creative activities, and moments of religious ecstasy are so enjoyable as to be intrinsically rewarding. But the main contribution of our research has been to suggest that all kinds of serious, work-related activities can also produce flow and therefore be intrinsically rewarding.

Physicians claim that performing surgery is "addictive" for essentially the same reasons that rock climbers find climbing or gamblers find poker addictive: namely, because it is an action system where challenges and skills are balanced, goals are clear, feedback is immediate, relevant stimuli can be clearly separated from irrelevant stimuli, and as a result the flow experience ensues.[22] Similar accounts were obtained from mathematicians describing the intrinsic satisfaction of working with numbers[23] and from high school students discussing their favorite courses.[24]

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[20] Mihaly Csikszentmihalyi, "Play and Intrinsic Rewards," *Journal of Humanistic Psychology,* Summer 1975, pp. 41–63; Mihaly Csikszentmihalyi, *Beyond Boredom and Anxiety* (San Francisco: Jossey-Bass, 1975); Mihaly Csikszentmihalyi, "What Play Says about Behavior," *Ontario Psychologist,* June 1976, pp. 5–11; and Mihaly Csikszentmihalyi, "Intrinsic Rewards and Emergent Motivation," in *The Hidden Costs of Reward,* M. R. Lepper and D. Greene, eds.

[21] Csikszentmihalyi, *Beyond Boredom and Anxiety.*

[22] Ibid.

[23] Florence Halprin, "Applied Mathematics as a Flow Activity" (Chicago: University of Chicago, in progress).

[24] Patrick L. Mayers, "Flow in Adolescence and Its Relation to School Experience" (Ph.D. diss.: University of Chicago, 1978).

Games are institutionalized action systems which provide the flow experience. The rules of a game define a constrained set of possible actions, and within these constraints, a person chooses a course of action directed toward a clearly specified goal. This demand for choice (and execution) of strategies is the challenge of the game. The possibility of choosing a better or worse move is dependent on the fact that other players are also subject to constraints and thus their behavior is to a degree predictable. Other players' actual and potential responses structure each participant's challenges. In the course of the game, each player receives immediate, unambiguous information about his positions, permitting him to change and shape the pattern of play. Good games allow participation at many levels of skill. A person can begin playing chess at a very simple level and gradually progress to highly complex strategies. Provided one can find players with matched skills, games offer a progressive hierarchy of challenges that can keep a person absorbed for a lifetime.

In the absence of these properties, activities become boring, frustrating, or anxiety provoking. Workers who get no feedback on the quality of their efforts quickly become disinterested. If there are no challenges in a situation, boredom is virtually inevitable.

Flow and its lack are not characteristics of the physical environment, but of the person's interaction with it. While the objective environment makes it easier or harder to achieve systemic interaction, the balance of skills and challenges necessary for flow ultimately depends on the person's perception of what the skills and challenges are. For example, loud noise hinders the concentration needed for maintaining flow, but it does not make flow impossible for those who can disregard it. We are currently studying large numbers of workers in industrial and clerical settings. Many find their jobs boring and unchallenging. But others, who are in every other respect similar to the first group, look on the same jobs as stimulating and enjoyable. The two groups appear to differ only in that persons in the latter group have an ability to restructure their tasks and create personal challenges which make work intrinsically rewarding.

While it is true that it is a person's attitude that determines whether an activity is intrinsically rewarding, the contribution of the environment should not be disregarded. It is easier for people to experience flow in a game than in a dentist's waiting room, and most people would perceive fishing as more enjoyable than working on an assembly line.

It is important to realize that the flow experience, while personally rewarding, is socially neutral. Like physical energy, it can be used for productive or destructive ends. For example, battle veterans often describe front-line war experiences with nostalgia, as the time when they felt most intensely alive. Warfare is an excellent flow activity because it provides clear goals, unambiguous feedback, total involvement, and potentially matched challenges and skills. Despite the fear and misery generated, war simplifies the lives of many men to the point that it overcomes its own drawbacks and becomes intrinsically rewarding.

In general, physical competition seems to be the most prevalent ingredient of flow-producing activities, both for participants and for spectators. From the

Balinese cockfight[25] and the Spanish bullfight to football, hockey, roller derby, and boxing, violent confrontations provide the most easily understood match between challenges and skills, the clearest goals, the most immediate feedback. One needs little training to become involved in an aggressive episode, as either participant or a spectator. While specialized training is required for a symbolic confrontation such as chess or for noncompetitive challenges, no special skill is needed to perceive the challenge of a confrontation and to act in a setting that requires violence.

It is for this reason, presumably, that so many of young children's flow experiences involve violent or destructive acts. Fighting with peers (or with parents) is one of the most available flow activities for children. Challenges and skills are at hand; goals and feedback are clear. Children who learn no other skills or see no other opportunities for action find in violence and destruction a ready source of enjoyment. By the same token, one would expect that grown-ups whose efforts to find flow in more complex forms are frustrated will regress to simpler forms. The pain on the face of a man in the arena is the most basic and universal sign that something important is happening, and for many people—the bored and the worried—it is one stimulus that can lead into the flow experience.

Conversely, the main goal of a truly civilized education is to teach children to experience flow in settings that are not harmful to self and others. As Plato maintained, the educational system should be oriented to teach youths how to find pleasure in action which strengthens the bonds of human solidarity instead of weakening them. Most subjects taught in schools today are "synergistic"[26] in that they are symbolic skills which serve to unite people rather than set them against one another. But, unfortunately, school activities often fail to provide flow experiences, so that students are not intrinsically motivated to participate in the activities. And, all too often, the only source of flow that students find is the negative opportunity to hurt or destroy. We next present the mechanism of this process in more detail.

Flow and School Crime

From the point of view of intrinsic motivation, schools are engineered all wrong. To paraphrase a point made by Milton Shore, the wonder is not why some students commit crimes, but rather why so many do not.[27] The schools' manifest function is to teach youths a set of abstract skills which are supposedly useful in

[25] Clifford Geertz, *The interpretation of Cultures* (New York: Basic Books, 1973).

[26] Abraham Maslow and John J. Honigmann, "Synergy: Some Notes of Ruth Benedict," *American Anthropologist,* April 1970, pp. 320–333.

[27] Milton Shore, "Psychological Theories of the Causes of Antisocial Behavior," *Crime and Delinquency,* October 1971, pp. 456–468.

performing adult roles in society. To students, the school's goals should appear as challenges—for example, learning math or learning biology. Quite often, however, these challenges are not matched to the students' skills. In a recent study, high school students rated 34 % of their classes as presenting them with more challenges than they could handle and 26 % of their classes as presenting challenges lower than their skills.[28] Only 40 % of all classes were rated near the optimum level of balance between skills and challenges. Their favorite activities (which ranged from drama to basketball) were rated at the optimum balance a much higher proportion of the time. In another study, teenage students consistently rated themselves as more bored in school than in any other setting.[29] Unpublished data from this research showed that students reported thinking about school-related activities while in class less than half (45 %) the time. Typical unrelated topics of thought were "my boyfriend," "going to sleep," "how my hair looks," "how much I hate Mrs. Green," and "how soon the bell would ring and release me from this boredom." Among topics of thought related to the overt class situation were the following: "how hard this is" and "what word I could make to give me points."

Occasionally, some intrinsically motivated learning occurs under these conditions. In some cases the teacher's and some students' skills mesh, creating a situation where they provide an optimal challenge to each other. But the knowledge level of teachers (their skills in the activity) typically so far exceeds that of students that balanced systems of reciprocal challenges are rare. Most learning in schools is motivated by the economy of extrinsic sanctions and rewards.

Unfortunately, these extrinsic sanctions and rewards, upon which the school is based, are destructive to any intrinsic motivation that still exists. Research shows that persons who initially do things because they find them satisfying lose this intrinsic motivation when extrinsic motivators are introduced.[30] The feeling of personal causality is subverted. Thus, schools tend to destroy any enjoyment in learning that may already be there.

The inability of schools to provide engaging action systems helps to create bored, frustrated, dissatisfied people. Since they lack opportunities for enjoyable involvement through school, students seek alternate structures of challenges to obtain flow experiences. Our research in progress suggests that the frequency of delinquent acts reported by secondary school students is inversely correlated with the level of challenges they perceive in school, while there is no relationship to the level of challenges perceived out of school. Delinquency appears to be one system of opportunities for action that is an alternative to the action systems of the school.

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[28] Mayers, "Flow in Adolescence and Its Relation to School Experience.".

[29] Mihaly Csikszentmihalyi, Reed Larson, and Suzanne Prescott, "The Ecology of Adolescent Activities and Experience," *Journal of Youth and Adolescence,* vol. 6 (1977), pp. 281–294.

[30] See Edward L. Deci, *intrinsic Motivation* (New York: Plenum, 1975); Greene and Lepper, *The Hidden Costs of Reward;* and Kruglanski, "The Endogenous-Exogenous Partition in Attribution Theory."

These findings suggest not only that challenges and skills are often mismatched in school, which is almost unavoidable in a mass educational system, but also that some students do not perceive what the school has to offer as challenging at all. The paradox is that the abstract, symbolic tasks provided in academic settings can be seen as challenges only by persons who have enough abstract, symbolic skills to act within that system of action. To those who develop the curriculum, math problems and history quizzes are real, but to most students they are not. They are not seen as challenging, except as artificial obstacles to be circumvented. This is true even of highly intelligent, motivated students. An outstanding fourth-grader who was asked about the most special event in his school year told with obvious animation of the time he was sent by his teacher to take the pupils' milk money to the principal's office. Of all the things he did in class all year, this event stood out as the most exciting, the one involving concrete responsibility in a real situation. This example is quite typical.[31] Children and adolescents rarely get completely involved in academic subjects. They find heightened experiences in those activities where they can recognize the challenge and match it with their skills. These tend to be interpersonal encounters, mostly involving peers, or the more concrete subjects taught at school, such as gymnastics, music, or art.

Adult ambivalence concerning the usefulness of specific academic subjects does not make it any easier for a student to recognize them as meaningful challenges. As Jules Henry pointed out, our culture tends to convey conflicting messages about the validity of scholarly pursuits.[32] Nearly the only subjects which are wholeheartedly endorsed by most communities are athletics for boys and the glamour-consumer role taught in home economics classes for girls. Not surprisingly, these challenges will seem real to most adolescents, and, as a result, many of them will experience flow only in settings that involve glamour or competitive athletics.

Yet most school time is spent in activities which students cannot structure as flow experiences. Boredom and worry, rather than the sense of total involvement and peak performance, are the characteristic states of many students. "As a result," writes Urie Bronfenbrenner, "the schools have become one of the most potent breeding grounds of alienation in American society."[33]

Antisocial Action Systems

In the prototypical crime movie, high suspense is created as the protagonists execute an elaborate plan for committing the crime. The elements of the situation they are dealing with (the bank, the watchman, the timetable) are never quite

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[31] See Paul Goodman, *Compulsory Mis-Education* (New York: Horizon Press, 1964); and John Holt, *The Underachieving School* (New York: Putnam's, 1969).

[32] Jules Henry, *Culture against Man* (New York: Vintage Books, 1963).

[33] Urie Bronfenbrenner, *Two Worlds of Childhood* (New York: Pocket Books, 1973), p. xxv.

entirely predictable and thus produce in the viewer a sense of excitement and vicarious challenge. But the possibility of the plan and the crime exists only because of the predictability of the system that is about to be subverted.

In a similar fashion, a school provides a predictable structure of actions and possible reactions. More and more high schools are becoming mechanical systems ruled by constraints on timing, location, and behavior. The similarity between schools and jails is becoming ever more pronounced. In such a system, the only way for many students to experience the self-determining state necessary for enjoyment is to disrupt its rules. Only because the order is there does the opportunity for disruptive behavior come into being. A student can subvert the order in a class session, the physical order of the building, the general control of the teachers, and the authority of the principals. Each provides a challenge to someone who is unable to find enjoyment within the constraints of the system.

At the simplest level, inserting wisecracks into a teacher's lecture provides a diverse and stimulating challenge. The immediate goal is to elicit laughter without being so inappropriate as to be thrown out of the classroom. If one is skillful one can progressively get away with more and more, as one builds an alliance with other members of the class. The teacher's authority is gradually weakened until control of the class is lost. But this destroys the action system, because there is no more order to disrupt. As with other parasitic interactions, the intruder must learn to moderate disruptive effect lest it destroy its host system.

This classroom drama may be played out on a different dimension of skills. The less verbally clever student may seek to achieve control of the situation through emotional combat. His challenges may involve exceeding the teacher in stubbornness, generating fear, being attuned to moments of vulnerability, and overcoming the class order by force of will. This game of emotional control involves the danger of tipping into physical violence. Similar escalating emotional duels may be played out with other students or with principals.

These opportunities for antisystem enjoyment involve competitive interactions. The skills of the teacher are the challenges of the student and vice versa. If the teacher is skilled, he can maintain control and experience the satisfaction of teaching. But if the student is more skilled or if several students cooperate, they may take the upper hand and have the satisfaction of control. The antisystem students possess an advantage in that they can choose from any number of disruptive strategies. But, with experience, a teacher develops a repertoire of counterstrategies, from exploiting his own alliance with other class members to dismissing students at the first hint of disruptive behavior.

The frequent school crimes of theft, vandalism, and arson represent other levels of challenge for antisystem students. To say that vandalism results from negative attitudes toward the school[34] does not explain why the actual event took place. Anyone who has ever looked at a bathroom wall recognizes that the interest of

[34] Nathan Goldman, "A Socio-Psychological Study of School Vandalism," *Crime and Delinquency,* July 1961, pp. 221–230.

graffiti writers is more than simple destruction. Similarly, one notices that the easiest windows to hit are not always those that are broken. We need to recognize that all the obstacles which must be overcome in stealing or in starting a fire make these acts great adventure, of the sort Tom Sawyer and his gang cherished.

We have presented only an overview of possible challenges for antisystem behavior that exist in schools. It is not suggested that antisocial action systems can keep a student in a continuous state of enjoyment, nor that this type of action will be intrinsically motivating to everyone. But when few other options are available, these provide real alternatives. A beginner needs few skills and he can find gradual challenges which provide new opportunities as his skills develop.

Implications for the Reduction of School Crime

There are several possible strategies for reducing school crime. One solution is to strengthen the set of contingencies which affect students' extrinsic motivation—by increasing security measures, enforcing heavier penalties, and providing stronger inducements for prosocial behavior. This approach will almost surely work, but it has some drawbacks. In terms of cost-benefit accounting, it is rather expensive. It requires a cumbersome machinery of deterrence and prosecution; conversely, it requires the expense of bribing young people to do what they ought to be eager to do naturally. More serious in terms of long-range effects would be the destruction of intrinsic motivation engendered by greater reliance on extrinsic contingencies. The more school relies on coercion and inducements, the more students will see schools as systems where voluntary participation and hence intrinsically motivated behavior are impossible. Schools that attempt to ensure predictability through extrinsic contingencies leave only one option open for the students' enjoyment: to disrupt the constraints of the system. The ultimate consequences of socializing each generation into a pattern of extrinsic motivation (and the consequences of the deviance which accompanies this socialization) are at present incalculable, but they cannot fail to be severe.

A second solution is to strengthen the means-end connection between adherence to school constraints and achievement of desired future goals. If all students could be certain that their futures depended on school performance, at least the extreme forms of disruption would be minimized. However, such an expectation would be unrealistic at present. High schools provide a sorting function for a minority of students interested in future academic or professional careers. For the rest, there is no clear connection between performance in school and future success. Moreover, a substantial proportion of youths must realistically feel that their chances of success in school are limited. In academic competition with better prepared middle-class students, ghetto teenagers suspect that participation in the school system will not add appreciably to their chances of achieving desirable life goals. Hence, adherence to the school's constraints becomes futile, at least in terms of means-end motivation. To change this state of affairs, a closer correspondence

between school performance and future rewards needs to be instituted, a difficult but not impossible strategy. Yet it has the same disadvantage as has the previous solution: In laying emphasis on external contingencies—in this case, future rewards—it trains youths to be extrinsically motivated and disregards the need for enjoyable involvement in the present.

A third solution is to keep in mind that intrinsic motivation is necessary for spontaneous involvement in a system, and to start transforming schools accordingly. This is, of course, a task that is at least as difficult and demanding of monies and energy as are the previous ones. What recommends this solution is that it lacks the side effects of the other two; in fact, in addition to reducing school crime, it has the promise of socializing youths into a pattern of action with long-term societal benefits. People who learn to find enjoyment in work will presumably be less dependent as adults on extrinsic sources of reward, thereby reducing the heavy burden of material bribes we now use to keep ourselves alive and more or less awake. The future ecological crisis, of which we are barely becoming aware, is to a large extent caused by our increasing need for symbolic material rewards as compensation for work and life activities that have lost their intrinsic meaning and no longer provide enjoyment.[35] If schools made their main goal teaching youths how to enjoy life, they would help accomplish the ultimate task of human liberation: to free people from addiction to extrinsic rewards.

It is this positive goal of teaching how to make life enjoyable that should direct the action of educators, and not the negative goal of reducing school crime. The latter problem will be solved along the way.

At this point, the reader will surely expect some detailed suggestions about how to reach such a goal. We would be dishonest if we pretended to have ready solutions. Our purpose has been to diagnose what we believe are the roots of the problem and indicate the general shape of what might be its solution. It would take the combined effort of communities, teachers, and administrators, as well as researchers, to begin translating these abstract concepts into practice.

However, our research does suggest certain directions for such teaching. In the first place, it most definitely does not mean that schools ought to amuse, entertain, coddle, or give pleasure. Although such experiences can be enjoyable, their positive effect is usually weak and rarely lasts long, so their motivational power is unreliable. In a recent study, high school students reported the least positive experience while they were watching television, although this was a voluntary and frequent activity—11 % of waking hours.[36]

On the contrary, enjoyable experiences that provide sustained intrinsic motivation are characterized by challenges that require the utmost extension of a person's skills and, in so doing, provide a feeling of mastery and growth. In

[35] Csikszentmihalyi, *Beyond Boredom and Anxiety;* and Mihaly Csikszentmihalyi, "The Release of Symbolic Energy" (Paper presented at the 1976 AATA conference, Baltimore, October 1976).

[36] Csikszentmihalyi, Larson, and Prescott, "The Ecology of Adolescent Activities and Experience."

principle, any activity could serve to produce flow experiences: There is nothing in the present curriculum of schools that is inherently inimical to flow. Learning Latin or trigonometry can be enjoyable. However, it is crucial that emphasis not be on the mastery of the subject matter but on the process of mastery itself. The important point is not that students learn trigonometry but that they learn to enjoy the act of learning. The greater variety of symbolic media students learn to use in an intrinsically motivated way, the more able they will be to restructure everyday life so that it provides flow, and the less dependent they will be on extrinsic motivation to give meaning and purpose to life. So the key for making schools enjoyable is not to be found in curricular changes, although those might also be indicated. The solution lies more in a change of instruction's goals.

While curriculum is not inherently an obstacle to flow, the organizational constraints of school systems are almost ideally suited to depriving students of any opportunity to experience enjoyment. As education becomes increasingly rationalized and centralized, students' chances to structure their activity, to feel free and in control, decrease in proportion. It seems inevitable that the trend toward making the school experience more predictable must be reversed if we are to develop intrinsically motivated students. If strict schedules, unbending rules, and impersonal teaching situations continue to prevail, schools will have to rely even more heavily on extrinsic contingencies to survive, and in the process they will breed new generations of bored, alienated adults for whom violence is a logical way to assert their existence.

Within these fairly general parameters, we have suggested a theoretical model from which concrete policies could be derived. The work of systematically generating and implementing such policies is going to be difficult and frustrating. Yet it seems to be the only reasonable alternative.

Chapter 15
Mood Variability and the Psycho-social Adjustment of Adolescents

R. Larson, Mihaly Csikszentmihalyi and R. Graef

This research uses a new time sampling method to compare adolescent and adult mood variability. Over 9,000 self-reports from 182 people are used to evaluate the widespread theoretical assumption that adolescents experience greater mood variability as part of a syndrome of psychosocial disequilibrium. The findings confirm that adolescents experience wider and quicker mood swings, but do not show that this variability is related to stress, lack of personal control, psychological maladjustment, or social maladjustment within individual teenagers. Rather than representing turmoil, wide mood swings appear to be a natural part of an adolescent peer-oriented life style. However, there are indications that adolescent mood variability interferes with capacity for deep Involvement, especially in school.

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Introduction

Moodiness has long been considered one of the distinguishing characteristics of adolescents. Numerous writers have suggested that adolescents are prone to wide, frequent, and unpredictable fluctuations in emotional state (e.g., Hall 1904; Freud 1937; Blos 1961). This variability has often been pictured as a pathic response to the overwhelming internal and external pressures associated with this stage of life. Hence terms such as "storm and stress," "crisis," and "turmoil," connoting uncontrollable mood swings, have been used in reference to this variability of adolescents. However, the strong connotations of these terms have not been substantiated. In fact, the belief that teenagers' moods are more variable than those of adults has not been systematically tested.

A major problem with evaluating adolescent variability is the difficulty in operationalizing "moods." How does one objectify what is quintessentially subjective? Moods refer to emotional shifts in an individual's personal orientation to the world (Wessman and Ricks 1966). The emotional states a teenager goes through in a day may include deeply subjective feelings of love and religious fervor. Thus, it is unfortunate that assessments of adolescents' moods have relied solely on judgments by outside observers. To make matters worse, these assessments typically have involved indirect observations made on emotionally disturbed adolescents without reference to comparison samples of children or adults.

In this study we used adolescents' own impression of their moods, gathered in a systematic way, A newly developed time sampling procedure has been employed to obtain self-reports during daily experience. Hence, we are in a position to evaluate direct descriptions of adolescents' moods as they naturally occur.

The procedure employed is called the Experience Sampling Method (Csikszentmihalyi et al. 1977). Adolescents and adults in this research carried electronic pagers during a normal week in their lives. Signals sent to the pagers cued them to fill out self-reports at random times during this period. Over a week each person provided 35–70 self-reports on their typical emotional states. These reports and concomitant data provide the basis for this investigation.

Adolescent Variability and the Disequilibrium Model

The reputation of teenagers for moodiness is widespread and recognized by laymen as well as by psychiatrists and academicians. Adults interviewed by Hess and Goldblatt (1957) and Musgrove (1963) used such words as "impulsive," "inconsistent," and even "wild" to describe "the average teenager," This reputation extends back at least as far as Aristotle, who stated that "the young are heated by Nature as drunken men by wine" (quoted by Fox 1977).

Scholars of the current century have given deeper and more pathic significance to the predicament faced by adolescents. It is claimed that teenagers must

accommodate sudden increases in biological drive (Hall 1904; Freud 1937), struggle for personal identity and autonomy from family (Erikson 1968; Blos 1961), cope with marginal social status (Lewin 1938), and, in Western society, confront fundamental developmental discontinuities (Benedict 1938) and cultural contradictions (Mead 1928). To make matters worse, they must face these exigencies with weak defenses and immature coping mechanisms (Freud 1937, 1958; Vaillant, 1977). Anna Freud, Lewin (1938), and others invoke a disease metaphor to describe the dynamics of adolescent mood variability, which is seen to be part of a syndrome of unmanageable conflict and stress leading to internal disorder and social maladjustment. Variability represents personal imbalance or disequilibrium.

It is this disequilibrium model of adolescent variability that we attempt to test in this paper. First, we evaluate the initial assumption that adolescents as a group are more variable than adults. Then, we consider whether adolescent variability is correlated with indicators of personal disequilibrium, including indices of stress, subjective control, psychological maladjustment, and social maladjustment. In these analyses three facets of variability are employed, each based on daily self-reports. One is the extremity of a person's moods, "degree of mood variation." The second is the instability of a person's moods, "mood changeability." The third is the lack of consistency of a person's moods measured in the same situation at different times, "situational independence," We use time sampling data to examine the significance of mood variability in adolescents' lives.

Method

The data for adolescents and adults used in this report come from two similar studies. In both the Experience Sampling Method was used to obtain a systematic sample of self-reports from people's ongoing daily experience.

The study of adolescents was done in a large suburban Chicago high school. The 75 students live in an old well-established community containing a broad mixture of cultural groups. The sample includes equal numbers from upper and lower middle class residential areas, equal numbers of boys and girls, and equal numbers from ail four high school grades. It represents 54 % of the randomly selected students initially invited to participate in the research.

The 107 people in the adult sample are volunteers from five Chicago area businesses. They include secretaries, assembly line workers, railroad workers, managers, and engineers ranging in age from 19 to 65. Half of the 40 men and 67 women are married.

In both studies participants carried electronic pagers and a booklet of identical self-report questionnaires for a week. Radio signals cued them to fill out self-reports at random times in the week. By this means 35–70 self-reports for each person were obtained.

The schedule of signals was designed to sample all a person's waking experience over a week. For the adolescents it extended from 7:30 AM to 10:30 PM on

weekdays and 8:00 AM to 1:30 AM on the weekend. Within this time range one signal was sent at a random time within every 2-h block of time. For the adults signals occurred within 2-h blocks between 8:00 AM and 10:00 PM all seven days of the week.

The adolescents responded to 69 % of the signals, providing a total of 4,489 reports. The adults responded to 80 % of the signals, providing a total of 4,791 self-reports. Omissions were due to such reasons as mechanical failure, forgetting the pager at home, and turning the pager off to go to bed. In spite of these omissions, we have found the data to provide an accurate representation of people's normal daily experience (Csikszentmihalyi and Graef 1980; Larson 1979a).

For each of these 9,000 self-reports people described their situation and their subjective state. They responded to questions asking where they were, what they were doing, and who they were with. They also used a series of structured items to rate their emotional and cognitive state at the time of the signal.

This paper is primarily concerned with eight of these mood items. Each presents a pair of adjectives describing opposite negative and positive states. A person is to rate his or her mood along a 7-point gradient between extremes of these states. These eight adjective pairs include three dealing with feelings (irritable-cheerful, sad-happy, and lonely-sociable), four dealing with mental and physical activation (passive-active, drowsy-alert, weak-strong, and bored-excited), and one other (constrained-free). The 7 points are marked: "very," "quite," "somewhat," "neither,"… "very." Analyses indicate that responses to these items are stable and consistent over a week. The means and standard deviations change little from the beginning to the end of a week of reporting (Larson 1979a).

These eight items were added to produce a "composite mood" scale. As these items are all intercorrelated in the expected direction ($r = 0.3$ to $r = 0.6$) this scale of total mood is fairly homogeneous. The range of the scale is between -24 (representing the most negative mood) and +24 (representing the most positive possible mood). Analyses in this paper deal with the mean, standard deviation, autocorrelation, and other statistical properties of composite mood.

Other items tap the amount of control a person reports over his or her daily life. They include the questions: "How well were you concentrating?" "How difficult was it to concentrate?" "Do you wish you had been doing something else?" and, most importantly, "Were you in control of your actions?" In addition, we consider the number of stressful events each adolescent has experienced in the past four years. This count was taken from responses to a modified form of the Holmes and Rahe inventory of stressful experiences (Donner 1981).

Various indicators of psychological and social adjustment were also obtained for the adolescents only. Psychological adjustment measures include average self-reported composite mood, scores on a shortened form of the Loevinger Ego Development Scale (Loevinger and Wessler 1970), and scores on modified scales of alienation from self and alienation from others (Maddi et al. 1979). Indicators of social adjustment include semester grades, teachers' ratings of intellectual and social involvement in class, a count of the total number of friends mentioned on the self-report forms, and the student's report that he or she has a leadership position

in at least one club or organization. While each of these indicators could be questioned, as a group they provide broad coverage of different ways in which an adolescent demonstates psychological and social adjustment.

Illustration of One Person's Mood Fluctuations

The Experience Sampling Method is unique in the quantity of information it provides on a person's emotional experience. The richness of detail in these reports tells a story of a week in each person's life. Subsequent interviews added explanations for what caused moods to rise and fall. This section presents the idiographic outline of one individual's week in order to illustrate the substance of the nomothetic mood patterns to be analyzed later in the paper.

The example is a young man of 17, a sports star and average student. Figure 15.1 shows his moods during a week that is neither typical nor atypical of those described by other teenagers in the sample.

His week starts out positively. He is in "high spirits" coming home from school on Monday. He is excited to have the pager, and things in general are going well for him. At 6:43 PM he reports having a good time, joking with his sisters. At 8:00 they start watching the Miss America Pageant together, but by this time the novelty of the pager and the excitement of the day have worn off. The pageant turns out to be uninteresting. At 8:40 PM he reports that the inactivity of watching TV has depressed his mood. Later in the evening, a phone conversation with his girl friend revives his spirits.

The next day, Tuesday, starts out low. At 8:40 AM he is taking a shower and worrying about an upcoming meeting with his dean. Unfortunately, we do not find out how that meeting affected him because he did not respond to two signals later in the morning. However, at 2:58 PM that afternoon he is feeling "hyper." He is sneaking out of school and the weather is beautiful. It is May 1; after staying indoors through a record-breaking Chicago winter, he feels great to be outside at last. Later that day we catch him wincing in pain. Playing basketball in the alley he tries to dunk the ball. But he slips on some newspapers, flipping over the garbage can, and banging his arm and knee.

Wednesday the pager finally catches him in class and his mood is low. "It's one of those classes where you just go and listen; there's not much to do." On this day the students try to argue with the teacher, but the teacher's attitude is. "I'm right. Just take it from me." His mood is low, but only until the class is over. Later that day he reports low moods again. He is with his sisters on the porch and he is getting hassled by the neighborhood brats, who among other things have spit at him. He says that their mere presence lowers his mood.

The high points come Friday and Saturday night when he is with his friends. They drink beer, drive around a lot, and do what many teenagers call "partying." They have a good time in spite of the difficulties they encounter. On Friday night they are falsely suspected of stealing some warm-up jackets at the raquet-ball club

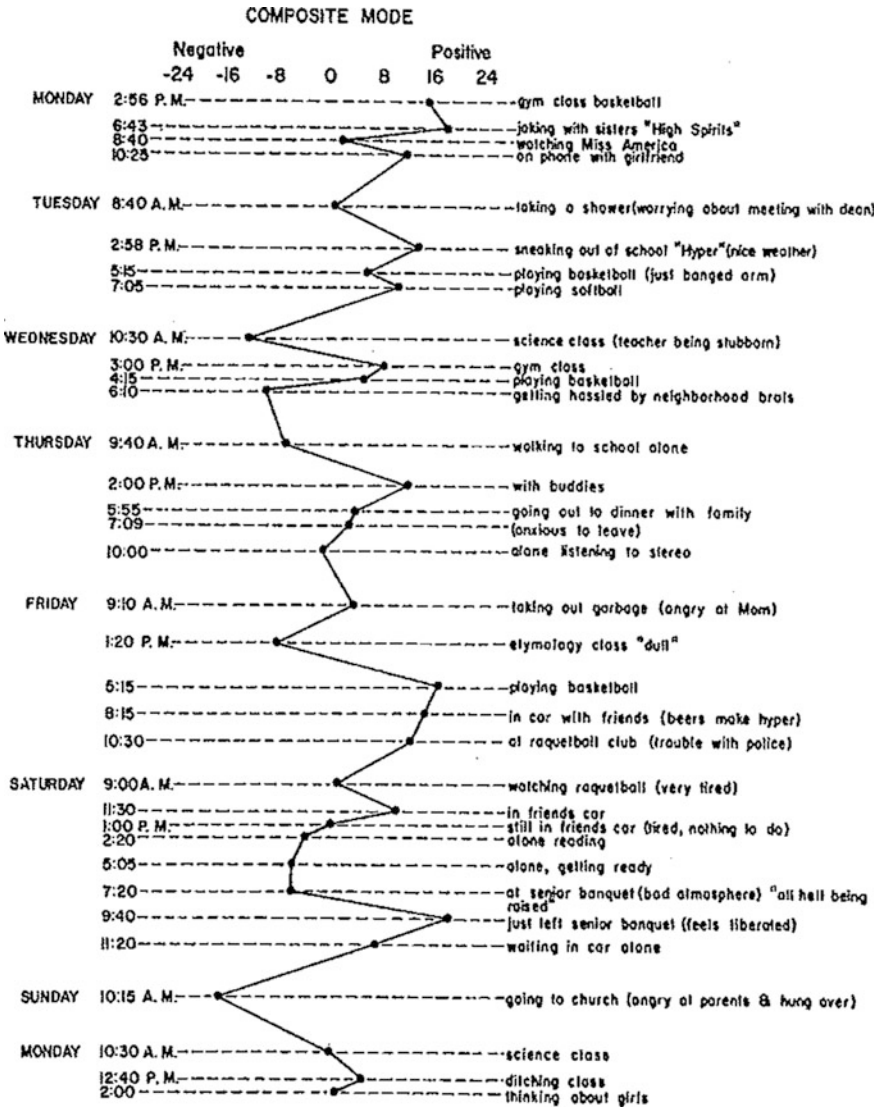

Fig. 15.1 Explanations for the *ups* and *downs* of one person's week. The figure shows the moods reported by a young man during one week in his life, with the explanations he gave for these moods

and are held by the police for several hours. On Saturday night the school's senior banquet turns into a "bummer" when several students, who came dressed in togas, trigger a food fight, causing the principal and the teachers to overreact with an angry lecture and stern measures. His highest mood on Saturday results from the feeling of freedom he has when he and his friends leave the banquet.

His lowest mood occurs on Sunday morning. The pager catches him with his parents riding to church. This is the description he gave afterwards:

> I never want to go to church, but I'll go. Finally I get a Sunday off; I don't have to work, so I can sleep a little later. But now I've got to go to church. I've got to wake up earlier than if I'd had to go to work.
>
> They always wake you up, and they're always cheerful, and you go "Oh, no!" They act cheerful but they're really hostile - if you don't want to go.
>
> Right then I'd just asked them to turn the channel, They were listening to some opera stuff. They just ignored me; you know, because we were parking and everything. Still they could have acknowledged me. That's why 1 was so upset. I went, "Jesus Christ, at least they could answer me."

He is also plagued by a hangover from the night before.

This young man's moods do not seem to be caused by inner turmoil or personal disequilibrium. His positive moods reflect vigorous participation in sports. His low moods are reactions to school, the neighborhood brats, being alone, and conflicts with his parents. These ups and downs are integral to the kind of life he experiences. The question is, how similar is he to other adolescents and how dissimilar are these adolescents to adults?

To make these comparisons we consider three statistical properties of each person's moods. Each represents different facets of variability. These properties are illustrated by this young man's week of mood fluctuations. First, one can see that his moods vary substantially between extremes of high and low. This property, *degree of variation,* is represented by the standard deviation of each person's mood. Second, one can see that his moods are very unstable from one report to the next. This property, *changeability,* is represented by the autocorrelation of each person's sequence of moods. Third, one can see that his moods are only weakly predictable by the activity he reports (e.g., sitting in class, playing sports) on each occasion. This property, *situational independence,* is represented by the proportion of variance in each person's mood which is explainable by his or her activity. As a group these three statistical indices are intended to cover the various ways that mood variability are discussed in the literature,

Are Adolescents More Variable?

The previous section illustrated the properties of one person's week. This section and the next describe how these properties are shared across people. The literature suggests that adolescents' moods vary between wider extremes, change more quickly, and are less predictable than those of adults. This section reports how adolescents differ from adults on these three criteria.

Prior to considering variations one needs to consider the middle points in people's mood swings. Overall, the adults' average mood states are significantly above those of the adolescents. Table 15.1 shows that this difference is primarily

Table 15.1 The average moods and the variability of moods for adolescents and adults

Mood items	Average moods (mean means)			Standard deviations (mean SDs)		
	Adolescents ($N = 75$)	Adults ($N = 107$)	Difference	Adolescents ($N = 75$)	Adults ($N = 107$)	Difference
Feelings (3 *to* −3)						
Cheerful–irritable	0.80	0.8S	0.05	1.35	1.19	−0.16[c]
Happy–sad	1.04	1.05	0.01	1.18	1.07	−0.11[a]
Sociable–lonely	0.97	0.86	−0.11	1.30	1.09	−0.21[d]
Activation (3 *to* −3)						
Active–passive	0.39	0.79	0.40[d]	1.49	1.24	−0.25[d]
Alert–drowsy	0.92	1.29	0.37[d]	1.62	1.35	−0.27[d]
Strong–weak	0.53	0.79	0.26[c]	1.24	0.96	−0.28[d]
Excited–bored	0.23	0.37	0.14[a]	1.47	0.97	−0.50[d]
Other (3 *to* −3)						
Free–constrained	0.62	0.70	0.08	1.50	1.13	−0.37[d]
Composite mood (24 to −24)	5.51	6.72	1.21[b]	7.61	5.91	−1.70[d]

[a] $p < 0.10$
[b] $p < 0.05$
[c] $p < 0.01$
[d] $p < 0.001$

attributable to items dealing with activation. On the average the adults feel more active, more alert, and stronger.

Hence, the adolescents' moods vary over a lower range than those of the adults. It is also worth noting that the adolescents indicate less sense of control over their daily lives. On the average, they report significantly lower concentration, greater difficulty in concentrating, greater wish to be doing something else, and less control of their actions. These differences support the disequilibrium model of adolescence. These teenagers appear to have less grasp on their daily lives than comparable adults. However, the important questions are; Do adolescents' moods vary more? Is this variability related to adolescents' lesser control over their daily lives?

Degree of Mood Variation

All 182 people in the two samples reported some variation between times when they felt better and times when they felt worse. The first comparison deals with the width of this variation, the range between highest and lowest moods.

The data clearly indicate that the adolescents experience wider mood swings. Table 15.1 shows the average standard deviations for the two groups. The adolescents report significantly greater variation in their state for seven of the eight

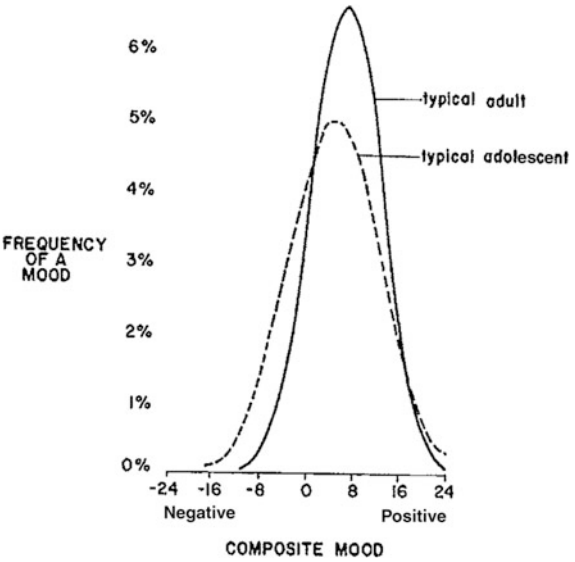

Fig. 15.2 The graph shows the frequency with which a typical adolescent and a typical adult report different levels of mood. The graph shows fitted normal distributions based on the mean and standard deviation for each group

individual mood items, as well as for composite mood. This difference is largest for the items excited-bored and free-constrained, which reflect major adolescent issues and are strongly affected by school (Csikszentmihalyi et al. 1977). Yet differences also exist for items such as alert-drowsy and active-passive, which are more simply physiological. Furthermore, even within specific situations, such as being in school and being alone, adolescents show significantly wider mood variation (Larson 1979b).

It is not yet clear whether this difference involves both the positive and negative end of the mood scale. Since adolescents' average moods are lower, this greater variability may merely represent more frequent moods at the negative end of the scale.

To evaluate this question we tabulated the number of people in both groups who reported experiencing a mood above 16 at least once. Among the 75 teenagers all but 11 (15 %) reported an occasion of being in this extreme positive range, whereas 39 of the 107 adults (36 %) never reported feeling this good. The difference between the two groups is significant in favor of the adolescents ($\chi^2 = 10.41, p < 0.001$). Although teenagers experience far more negative moods, they also appear to experience more times when their mood is extremely positive. Therefore, their wider mood variation involves being at both extremes more often.

To summarize the differences, Fig. 15.2 shows the distributions of daily moods for a typical adolescent and a typical adult, based on normal distributions. One can see that adolescents make greater use of the ends of the scale to describe their moods. They report fewer moods in the middle; far more often than adults they experience themselves to be at the negative extreme; and somewhat more often

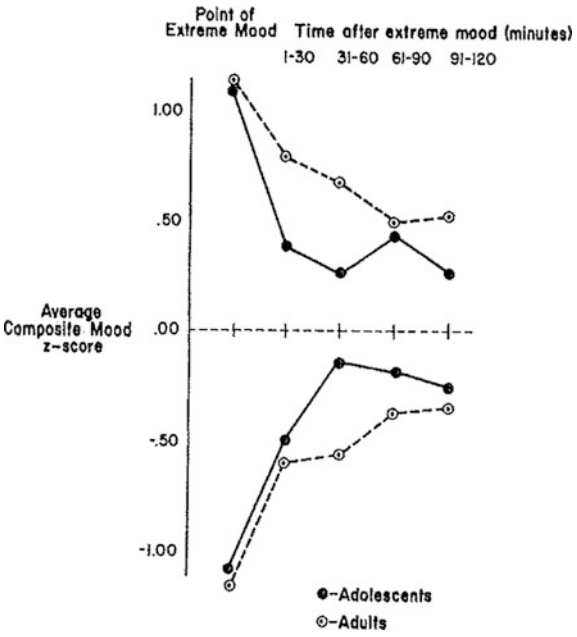

Fig. 15.3 Moods following an extreme high or low mood

than adults they experience the positive extreme. These differences are consonant with Bradburn's (1969) finding that with age people report both fewer negative and fewer positive emotional experiences.

The Changeability of Moods

It is one thing to experience a high mood, it is another thing to have this mood last. The second comparison between adolescents and adults deals with mood changeability. The question is, how long after reporting an extreme positive or extreme negative mood do adolescents and adults still show traces of that mood?

An extreme mood was defined as one at least half a standard deviation above or below an individual's average composite mood score. To evaluate the stability of these extreme moods, we considered instances when a second self-report had been made within 2 h. For control, times the adolescents were in school and times the adults were at work have not been included. Further, by using mood z scores, based on each person's mean and standard deviation, individual differences were controlled for. The question is, How long do these extreme moods last?

Figure 15.3 shows the moods which followed the extreme states. The lines in the figure indicate the attenuation of positive and negative states over a 2-h period. Adolescents' moods disappear more quickly and are much less stable. On the

average, adolescents' positive moods diminish by two-thirds within 30 min, whereas the adults' positive moods are still at half strength 2 h later. A similar, though less dramatic, difference exists for the attenuation of negative moods. Like their high emotional states, adolescents' low moods do not last very long, Table 15.2 confirms that these differences between adolescents and adults are statistically significant.[1] It is clear that adolescents' moods are more changeable.

Parallel analysis of cognitive and motivational items used in the study indicates that this changeability is not simply emotional. Table 15.3 shows that the difference between adolescents and adults in self-reported concentration is even more striking. 30 min after reporting high concentration the teenagers show no significant trace of it, whereas the adults show significantly higher concentration 2 h after. Apparently, adolescents rarely concentrate for any length of time. Their concentration, like their mood state, is fleeting.

The Unpredictability of Moods

If adolescents' moods are not consistent from 1 h to the next, one might also expect greater inconsistency within standard situations. That is, watching TV on one occasion may elicit a very different mood than on another. The third comparison deals with the situational independence of moods. The expectation is that adolescents' moods are less consistent by situation than those of adults.

This expectation is tested here by considering people's average moods in 13 major categories of activity (e.g., watching TV, doing housework, eating). If a person is consistent, then much of his or her mood variance should be attributable to differences between activities. Analysis of variance was used to determine what percentage of each person's total mood variance is related to these differences.

For the average adolescent, the 13 activities account for 37.0 % of total mood variance (mean eta^2). For the average adult, activity accounts for 37.8 % of total mood variance. The difference is not statistically significant. Thus, on the whole adolescents' moods are not less predictable than those of adults.

Is Mood Variability Associated with Stress, Lack of Control, and Psychosocial Maladaptation?

Many writers claim that teenagers' variability represents psychosocial disequilibrium and is related to adolescents' immaturity and their lack of effective control over their lives. Such variability is also thought to be part and parcel of the more

[1] This difference is also evident in the autocorrelations for the two groups. The adults' moods show higher average autocorrelations over the sequence of the week.

Table 15.2 Mood changeability: the attenuation of extreme mood states[a]

	Length of time after extreme mood (minutes)	Adolescents		Adults		Difference: adults minus adolescents
		Number of reports	Average Mood (z score)	Number of reports	Average mood (z score)	
A. Moods following an extreme positive mood						
Point of extreme mood (total)	0	229	1.08[d]	395	1.12[d]	0.04
Points following extreme mood	1–30	24	0.39[c]	64	0.78[d]	0.39
	31–60	39	0.25[b]	97	0.67[d]	0.42[c]
	61–90	96	0.44[d]	109	0.48[d]	0.04
	91–120	70	0.26[b]	125	0.51[d]	0.25
B. Moods following an extreme negative mood						
Point of extreme mood (total)	0	281	−1.10[d]	407	−1.16[d]	−0.06
Points following extreme mood	1–30	35	−0.51[d]	40	−0.58[d]	−0.07
	31–60	52	−0.16	97	−0.55[d]	−0.39[c]
	61–90	115	−0.19[b]	120	−0.38[d]	−0.19
	91–120	79	−0.27[c]	150	−0.33[d]	−0.06

[a] The table shows reported mood levels within 2 h of extreme positive and negative moods. Occurrences of extreme moods are defined as times when people report composite moods above or below their individual means by half a standard deviation or more. All instances when adolescents are at school and when adults are at work have been excluded. Average mood is based on values that have been standardized according to each person's mean and standard deviation. The significance tests evaluate the deviation of the mean from a neutral mood of $z = 0$

[b] $p < 0.05$

[c] $p < 0.01$

[d] $p < 0.001$

Table 15.3 Concentration changeability: the attenuation of high concentration[a]

	Length of time after extreme high concentration (minutes)	Adolescents		Adults		Difference: Adults minus Adolescents
		Number of reports	Average mood (z score)	Number of reports	Average mood (z score)	
Point of extreme high concentration (total)	0	233	1.16[e]	440	1.07[d]	−0.09
Points following extreme high concentration	1–30	20	0.11	78	0.66[e]	0.55[e]
	31–60	38	−0.08	115	0.41[e]	0.48[e]
	61–90	96	0.09	116	0.33[e]	0.24[b]
	91–120	79	0.25[c]	131	0.25[d]	0.00

[a] Average mood is based on values that have been standardized according to each person's mean and standard deviation. The significance tests evaluate the deviation of the mean from a neutral mood of $z = 0$
[b] $p < 0.10$
[c] $p < 0.05$
[d] $p < 0.01$
[e] $\rho < 0.001$

tenuous psychological and social adaptation often referred to under the rubric of "adolescent turmoil."

The present findings have shown that *as a group* adolescents experience less control over their daily experience and *as a group* they experience more variability in their moods. However, the findings do not indicate whether these two characteristics are related within individual adolescents, or whether variability is related to an adolescent's psychological and social maladaptation. The analyses in this section employ the same three facets of mood variability: degree of variation, changeability, and situational independence. The question is whether within individuals these facets of mood variability are negatively correlated with self-reported control, psychological adjustment, and social adjustment—as the disequilibrium model predicts.

Statistical Indices of Mood Variability

Mood variation and situational independence were measured by the same indices described in the previous section—the standard deviation of composite mood and the proportion of composite mood variance explained by activity. The autocorrelation of each person's mood over the week was used as an index of changeability, an index also used by Huba et al. (1976). Higher autocorrelations indicate less changeability from one time to the next.

These three indices are relatively independent of each other. Only width of variation and changeability are correlated, and this correlation is negative ($r = -0.36$, $\rho < 0.001$). In other words, those with greater variation in moods change moods less quickly. Hence, mood variability is not a homogeneous construct and cannot be considered as a singular characteristic of an individual.

These three separate types of mood variability occur equally across different subgroups of teenagers within this sample. None is significantly related to sex, socioeconomic status, or age. However there are associations with academic intelligence and creativity. Table 15.4 shows that situational independence is related to higher academic ability, as measured by the SCAT; and all three indices are related to fluency, as measured by Guilford's (1967) Unusual Uses Test.

The Relation of Mood Variability to Stress and Lack of Control

In the nomological net of turmoil theorists, mood variability is related to the inadequacy of an adolescent's psychological controls. External stress is an added factor which disrupts the system, increasing mood variability. These links in the nomological net are evaluated here. The testable hypothesis of the disequilibrium model is that stress and lack of control should be correlated with greater mood variability.

The expected contribution of stress is only partially supported by the data. First, contrary to the model, amount of experienced past stress is not related to degree of control. Amount of stress is not correlated with averaged reported concentration ($r = 0.09$, ns), difficulty in concentrating ($r = 0.23$, ns), wish to be doing something else ($r = -0.10$, ns), choice in selecting one's activity ($r = -0.12$, ns) nor control over one's actions ($r = -0.15$, ns). Hence, stress does not appear to weaken personal control, but does show some relationship to one criterion of mood variability (Table 15.4). Amount of stress is correlated with the degree of variation in an adolescent's moods, though not with mood changeability or situational independence.

The expected relationship of control with mood variability is equally undramatic. No parameter of mood variability is related to poorer concentration, as the model predicts, although two parameters (degree of variation and changeability) are related to greater difficulty in concentration. Only degree of variation is correlated with higher average wish to be doing something else, and only situational independence is related to less perceived choice over one's activities. Most significant is the finding that none of the three parameters is correlated with average responses to "Were you in control of your actions?"

In sum, the evidence that moodiness is related to an absence of control is quite weak. There is an indication that range of variation is related to stress and that separate facets of mood variability are related to isolated components of subjective control, but these correlations are generally unimpressive.

Table 15.4 Correlations of mood variability with adjustment indices for the adolescents ($N = 75$)[a]

	Dimensions of mood variability		
	Variation (sd)	Changeability (autocorrelation)[b]	Situational independence (% variance explained)[b]
Intelligence and creativity academic ability (SCAT)	−0.11	−0.07	0.27[c]
Creativity (*unusual uses test*)			
1. Fluency	0.29[c]	−0.22	0.25[c]
2. Flexibility	0.13	−0.15	0.41[e]
3. Originality	−0.09	−0.11	0.24[c]
Subjective control and life stress			
Life stress (in last four years, $N = 40$)	0.35[c]	−0.00	0.17
Control (*average self-ratings*)			
1. Concentration	−0.01	0.20	−0.07
2, Difficulty concentrating	0.19	0.32[d]	−0.02
3. Wish to be doing something else	0.29[d]	0.06	−0.06
4, Choice in selecting one's activity	−0.00	−0.18	−0.30[c]
5. Control of one's actions	0.05	−0.04	−0.10
Psychological and social adjustment			
Psychological adjustment			
1, Average composite mood	0.12	−0.01	−0.01
2. Alienation from others	−0.24[c]	0.13	0.20
3. Alienation from self	−0.04	−0.16	0.07
4, Ego development	−0.05	−0.01	0.14
Social adjustment			
1. Semester grades	−0.19	−0.11	0.24
2. Teachers' ratings (avg.):			
a. Intellectual involvement	−0.25[c]	−0.11	0.24
b. Social involvement	−0.03	−0.10	0.24
3. Number of friends	0.13	−0.01	0.17
4. Leadership in organization	0.24[c]	−0.18	0.18
Multiple r^2	0.56	0.31	0.4S
Adjusted r^2	0.04 (ns)	0.00 (ns)	0.00 (ns)

[a] Because of incomplete data the *Ns* are reduced for some of the correlations
[b] Values for these variables have been reversed (made negative) so that higher scores indicate higher variability
[c] $p < 0.05$
[d] $p < 0.01$
[e] $p < 0.001$

The Relation of Mood Variability to Psychological and Social Adjustment

The next step in the disequilibrium model associates mood variability with maladjustment. The last part of Table 15.4 shows the correlations of the variability parameters with the indicators of psychological and social adjustment. What is conspicuous here is the lack of strong correlations. Furthermore, two of the three significant correlations go in the opposite direction from the turmoil hypothesis: The adolescents reporting wider mood variation are less alienated from others and are more likely to be leaders in organizations. The only support for the model is a negative association between degree of variation and teachers' ratings of intellectual involvement in class.

Taken as a whole, these findings appear to disconfirm the disequilibrium model. Research with a larger sample might reveal slight relationships; however, such relationships are not likely to be very substantial. The findings show that teenagers' mood variability is not strongly related to psychosocial maladjustment or lack of control. Hence the mood variability of adolescents is not turmoil. Yet they do show more turmoil than adults. The question remains, what do the wider mood variation and greater changeability of adolescents represent?

Mood Variability and Life Style

The week of the sports star discussed earlier in this paper suggests an alternative to disequilibrium explanations for adolescents' moods. The emotional ups and downs in his experience are related to the activities and events that make up his week. Perhaps variability is related to unique characteristics of adolescents' life styles.

To follow up on this possibility, we examined the correlations between mood variability and estimates of how each person spends his or her waking hours. We considered the proportion of time each adolescent reported being with different classes of people, engaging in different activities, being in different environments, and thinking about different things.

These life style variables were not correlated with mood changeability or situational independence. Apparently, the latter two facets of adolescent variability are related to neither disequilibrium nor life style.

However, life style variables are related to degree of mood variation. The range of moods shows significant correlations with how adolescents spend their time, as can be seen in Table 15.5.

Mood variation varies on a friends-versus-school axis. Wider variation is reported by those who spend more time with friends, in public, and who spend more time thinking about their appearance and about heterosexual relationships. Mood variation is associated with a peer-oriented life style. Further evidence indicates that teenagers with high mood variation are more likely to have a boy

Table 15.5 The relation of mood variability with life style[a]

Variable	r
Peicent of self-reports in the presence of	
Family	−0.16[c]
Friends	0.32[c]
Alone	−0.19
Percent of self-reports	
At home	−0.27[b]
In public (nonschool)	0.27[b]
Percent of self-reports with thoughts on	
School and schoolwork	−0.27[b]
Sports	−0.00
Food	−0.12
Television	0.09
Self (primarily one's appearance)	0.23[b]
Society, religion, politics	−0.20
Family	0.09
Friends	0.09
Heterosexual relations	0.40[d]
Time (e.g., how slow it's going)	−0.27[b]

[a] The table shows the correlations between the specified variables and the standard deviation of each adolescent's moods ($N = 75$). The authors wish to thank Kirk Alley for the coding of the thoughts. These percentages are based only on self-reports during nonschool hours
[b] $p < 0.05$
[c] $p < 0.01$
[d] $p < 0.001$

friend or girl friend (eta = 0.27, $p = 0.03$) and (as shown in Table 15.4) they are more likely to be leaders in organizations and they are less likely to be alienated from others. Unfortunately, these findings do not indicate whether the peer-orientation causes the moods or *vice versa*.

Involvement in school appears to be bear an opposite relation to mood variability. Wider variation is negatively associated with amount of time spent thinking about school and amount of time spent doing homework (r = 0.22, $\rho = 0.05$). As shown in Table 15.4, it is negatively associated with teachers' ratings of intellectual involvement in class and possibly with semester grades. Mood variation and schoolwork appear to be in conflict. Experiencing wide moods appears to interfere with giving attention to school. However, partial correlations indicate that this is not entirely true. When amount of time with friends or amount of time thinking about heterosexual relations is controlled, these correlations disappear. Hence, peers seem more likely than moods to compete with school for an adolescent's attention.

The percentage of time an adolescent thinks about "society, religion, and politics" has a significant negative correlation with degree of variation, regardless

of which variables are controlled. This suggests that mood variability interferes with an adolescent's directing attention to the world outside his or her immediate experience.

This pattern of relationship can be summarized with reference to our sports star. Although he is only one individual, his life style illustrates the norm for teenagers with wide mood variance. There is little suggestion that his wide mood swings represent inner turmoil or lack of control—he is not a victim of personal disequilibrium. What distinguishes him is the amount of time he spends with friends in variable, unstructured situations and the minimal attention he gives to school and the world outside. His wide mood swings appear to occur as a natural part of his active life with his peers.

Discussion

Recent research has cast doubt on the image of the adolescent years as a period of turmoil (Offer 1969; Offer and Offer 1975; Douvan and Adelson 1966; Rutter et al. 1976). The evidence for emotional turmoil suggests that it occurs in early adolescence and is confined to girls (Simmons et al. 1973,1979). The research reported here has demonstrated greater mood variability among adolescents, but has indicated that it is not turmoil. The teenagers with the most variance in our study did not show greater disequilibrium. Their mood swings did not appear to be either arbitrary discharges of internally generated drives or pathic responses to overwhelming pressures from the external world.

Occasionally, writers have suggested a relationship between variability and adjustment opposite from the one we tested: that inhibition of moods rather than free expression is the maladjusted response to adolescent conflicts (see Jacobson 1961; Freud 1958). This study offers little evidence that either less or more variance is associated with psychological or social maladjustment. Linear (Table 15.4) and curvilinear relationships (not shown) have turned up few significant associations. Within normal populations, mood variability does not appear to be strongly related to adjustment.

Nonetheless, adolescents' moods are more variable, and the implications of this mood variability are important. The phenomenologist Boss states, "An individual's mood at a particular moment establishes the whole nature of his relationship with the world" (quoted by Wessman and Ricks 1966, p. 17). Behavioral validation for this statement is indicated by research showing moods to be strongly related to work productivity (Hersey 1932), school performance (Mayers 1978), social withdrawal (Wessman and Ricks 1966), helping others (Batson et al. 1979), and drug use (Paton et al, 1977), among other things. Fluctuations in mood affect the capacity for stable, enduring participation in the world.

The findings of this research indicate two separate ways in which adolescents' daily moods are more variable than those of adults. First, adolescents show a wider

range of moods. They experience higher highs and lower lows. Adulthood seems to involve trading emotional richness for personal control (Block 1971).

The second way relates to the sequence of emotional states in time. The highs and lows of the adolescents come and go quickly, while those of the adults endure much longer. Adolescents' moods are more changeable. Thus, while the adolescents experience more high states, these tend to be short-lived. In contrast, the adults show a higher, more stable mood level.

These differences have existential implications as to how adolescents experience the world: Teenagers, especially those most engaged with friends and lovers, experience a world that is much less even and steady. An unsteady world does not make for prolonged commitments of attention. The data indicate that adolescents' concentration is even shorter-lived than their moods. Only 30 min after adolescents have reported high concentration there is no remaining trace of focused attention. Adolescents rarely think about anything long and hard.

These findings may be most significant to educators and others concerned with teenagers' socialization. The task of teachers is to engage their students with abstract topics having little immediate relevance. Many teachers deal with this task by adopting TV personalities and presenting the material in the form of entertaining "one-liners." This approach concedes the fickleness of students' attention. An opposite and more difficult approach is to see teenagers' short attention span as a challenge and attempt to engage them in enduring involvements. The President's Commission on Youth (1974) lamented the failure of schools to promote the capacity for deep, focused involvement. The findings of this research point more than ever to the need to take this challenge seriously. Variability is not a malady of adolescents, but may well be an obstacle to their growth.

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Chapter 16
Affiliation Motivation and Daily Experience: Some Issues on Gender Differences

Maria Mei-ha Wong and Mihaly Csikszentmihalyi

Study examined the relationship of affiliation motivation to related behaviors and quality of experience. Attention focused on how gender moderates such relationship. Ss were 170 teenagers. Daily functioning was recorded by the experience-sampling method. Affiliation and other personality characteristics were measured by the Personality Research Form and the Offer Self-Image Questionnaire. Highly affiliative Ss, regardless of sex, more often wished to be with friends and less often wished to be alone than less affiliative ones. However, regardless of affiliative orientation, girls actually spent more time with friends and less time alone than boys. Moreover, highly affiliative girls reported better moods than less affiliative girls, whereas highly affiliative boys reported worse experiential states than less affiliative boys in both situations. Results were interpreted as reflecting different social expectations concerning gender role behaviors.

One of the fundamental human motives is to establish and maintain relationships with others. The present research studied the relationship between affiliation motivation and patterns of wishes and thoughts, choices of companions and activities, and quality of experience in everyday life. Special attention was also

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given to how respondents' gender might moderate such a relationship. As we indicate, these two questions have not been adequately dealt with by past studies.

Affiliation motivation has been described as the tendency to "form friendships and associations; to greet, join, and live with others; to co-operate and converse sociably with others; to love: to join groups" (Murray 1938, p. 83), as a preference in both thoughts and behaviors for "establishing, maintaining and restoring a positive affective relationship" (Atkinson Heyns and Veroff 1954, p. 406), and as an inclination to "enjoy being with friends and people in general; to accept people readily; to make efforts to win friendships and maintain associations with people" (Jackson 1984, p. 6). Recently the construct has also been conceived as having four different dimensions: social comparison, emotional support, positive stimulation, and attention (Hill 1987).

Both projective techniques and questionnaire measures have been used to study affiliation. People who scored high on affiliative orientation of questionnaire measures exhibited a concern to maintain and establish relationships with others. For instance, Gifford (1981), using the Personality Research Form (PRF), demonstrated that affiliation was related to the frequency of verbal participation in small groups. It was also observed that people who were distressed by social interaction tended to exhibit lower affiliative need on the Adjective Check List (Geist and Hamrick 1983). Using the same measure, Switzer and Taylor (1983) found that college men with strong affiliative needs were more likely to choose a living arrangement that offered more potential social interaction and less potential privacy O'Malley and Schubarth (1984) found that college students with high affiliative orientation, as measured by the Edwards Personal Preference Schedule (EPPS), had a tendency to distribute rewards according to their partners' behaviors. They divided the rewards equitably with an equitable partner, equally with an equalitarian partner, and self-interestedly with a self-serving partner (O'Malley and Schubarth 1984). In a study of married couples, a high affiliation score on the EPPS was negatively correlated with feeling emotionally uninvolved (Eidelson 1983).

A number of studies using projective techniques to measure affiliation orientation also showed that highly affiliated people made special efforts to develop social contact with others. To cite a few examples, men with high affiliation motivation, as measured by the Thematic Apperception Test (TAT), communicated more often with colleagues and called and visited their friends more frequently (Lansing and Heyns 1959). They were also more likely to choose to work with less competent friends rather than competent strangers (French 1956). Women who gave highly affiliative responses to the TAT were more likely to be involved in romantic relationships with men (Morrison 1954), to decide to get married right after college (Bickman 1975), to exhibit more positive affiliative acts while working with their peers in small groups (Fishman 1966), and to spend less time alone (Constantian 1982). Affiliative people, regardless of sex, were more anxious when their friends rated their likability (Byrne 1961), had a tendency to avoid making divisive comments toward group members working on the same task (Exline 1962), and preferred to work with people who had equal need for affiliation (Exline 1960). They outperformed people with low need for

affiliation when performance led to the satisfaction of affiliative goals (Atkinson and Raphelson 1956; DeCharms 1957; French 1955).

The desire to establish contact with others, as indicated by the TAT, does not necessarily indicate how much affiliative people enjoy their relationships, however. Many researchers (e.g., Boyatzis 1973; McAdams 1982; McAdams and Constantian 1983) contend that the TAT measure of affiliation taps a "fear of rejection" dimension of the affiliation motive, which they think explains the negative correlation between affiliation and satisfaction with interpersonal relationships in a number of studies (See 1978; Veroff 1982; Veroff and Feld 1970), So McAdams (1980) developed and cross-validated a TAT scoring system for a new concept, intimacy motive, to reflect the more affirmative aspects of the need for being with others.

Studies on intimacy motivation showed that the motive is related to behavior in theoretically meaningful ways. These studies were described in detail in McAdams (1989) book *Intimacy*. Here we only mention a few of them. When compared with low-intimacy-motive people, those with high intimacy motive were more likely to be perceived as warm and affectionate (McAdams 1980), to recall events that concern friendship and sharing (McAdams 1982), to mention life stories that have themes of caregiving and establishing friendships (McAdams 1985), to exhibit warm and friendly nonverbal behavior in a dyadic interview McAdams et al. (1984a), and to disclose more personal information and engage in more conversations with friends (McAdams et al. 1984b).

Overall, affiliation motivation (or the related construct, intimacy motivation[1]), whether measured by questionnaires or projective techniques, seems to be positively related to a concern to maintain and establish relationships with others. This is not to overlook the long-standing debate about whether questionnaire measures and projective techniques are indeed measuring the same kind of affiliation motivation. Some studies have demonstrated a weak relationship between the two measures (e.g., Clarke 1973; McClelland 1980). Yet one recent study showed that the two techniques were significantly correlated in the measurement of the affiliation motive (Schroth 1985). This debate remains unsettled, but it is beyond the scope of this article to discuss the issue further.

Whereas the behavioral correlates of affiliation motivation seem to be widely studied, how the motive relates to daily functioning—how it energizes people to think, feel, and act in a natural environment—is still unclear. Most studies have focused on one or a few specific behaviors measured at one single point in time, without interpreting the behaviors with respect to other behaviors, feelings, thoughts, and wishes over time. Many studies were done in the laboratory; generalizing these findings to everyday life is therefore difficult. As Singer and Kolligian (1987) concluded in their review on recent personality studies: "[Researchers] need to carry out studies that use 'natural' experiences and actions, measured often across time and situations in the public and private forms of human expression" (p. 563).

[1] There is no questionnaire measure of intimacy motivation at present.

The only study we know of that addressed some of these questions was conducted by McAdams and Constantian (1983). They measured subjects' affiliation and intimacy motivation by the TAT and then asked them to carry an electronic paper for 1 week, answering questions on a small booklet whenever they received the signals, (This technique, known as the experience-sampling method [ESM], was originally developed by Csikszentmihalyi et al. 1977, and is described in detail later in this article,) The results showed that intimacy motivation was related to daily living in predictable ways. People with high intimacy motivation expressed more positive feelings in social interactions and spent more time writing letters and having conversations with others than did those low in intimacy motivation. When high-intimacy people interacted with others, they were less likely than low-intimacy people to express the wish to be alone.

However, most of the hypotheses about affiliation motivation were not supported by McAdams and Constantian's (1983) data. High affiliative need was not significantly related to the occurrence of interpersonal thoughts. It predicted neither positive nor negative affects in social interactions and solitary situations. The correlation between affiliation motivation and percentage of time subjects wished to be alone, though negative, was not significant. Last, affiliation did not correlate strongly with the number of interacting episodes reported.

Moreover, the results that did support the hypotheses concerning affiliation motivation seemed to be true only for women, although there was no significant sex difference in affiliation scores. For instance, women's affiliation motivation correlated significantly with (a) number of conversation and letter-writing episodes and (b) percentage of time wishing to interact with others when alone. These results might have been due to the small number of men in the study ($n = 17$). Also, as some have pointed out (e.g., Boyatzis 1973; McAdams 1982b), there may be both theoretical and methodological problems concerning the TAT measures of the affiliation motive. However, it remains uncertain whether the affiliation motive actually relates to thoughts and behaviors in everyday life, which is assumed to be true by both researchers and laymen.

These results also brought up another issue that affiliation motivation research has not resolved—namely, sex differences in the need for affiliation. This issue consists of two independent questions: (a) Do males and females differ in affiliation scores (strength of the motive), and (b) do males and females high and low on affiliation motivation differ in their thoughts, feelings, and behaviors (correlates of the motive)? Finding no differences on one question does not mean that the other can be ignored.

McAdams and Constantian (1983) found no significant sex difference in the level of affiliation and intimacy motivation. However, as mentioned earlier, they did report interesting differences in the thoughts and behaviors of highly affiliative men and women. Moreover, women in the study were two times more likely than men to think about people or interpersonal relationships.

Other studies provided conflicting results as to whether there are sex differences in the strength of the affiliation motive or in its behavioral correlates. For instance, in a study of married couples, the wives showed higher affiliative scores than the

husbands on the Psychological Screening Inventory (Moffitt Spence, and Goldney 1986), which might have led to more internal conflict for the wives Hill (1987), using his newly developed Interpersonal Orientation Scale, observed a small but significant sex difference in two of the four dimensions (emotional support and positive stimulation) of affiliation motivation. Some studies using projective measures reported higher affiliation motivation among females (e.g., Agrawal and Upadhyay 1983), but others did not (e.g., Chusmir 1985; Hyland and Mancini 1985). Stewart and Chester (1982), after extensively reviewing affiliation studies using the TAT, argued that there was no conclusive evidence about sex differences in the strength of the affiliation motive. However, in a review of gender differences in affiliative orientation, Minton and Schneider (1980) contended that women scored higher on both projective and questionnaire measures of affiliation. Schroth also found significantly higher affiliative scores on both the TAT and the EPPS for female subjects. McAdams, Lester, Brand, McNamara and Lensky (1988) found that among a sample of over 1,500 college students, women had significantly higher intimacy motivation than did men. The inconsistencies of findings therefore do not appear to be related solely to the differences in measurement techniques.

With regard to behavioral correlates, researchers also found contradicting results. The following studies all adopted the TAT method but arrived at different conclusions, A negative relationship between need for affiliation and popularity for college men was reported (Atkinson et al. 1954; Shipley and Veroff 1952). However, among college women, a significant positive correlation between need for affiliation and how much one was liked by one's group members was observed after an experimental task (Fishman 1966). Still another study found a negative relationship between the affiliation motive and popularity among girls but not among boys (Ratliff 1980).

Many studies have observed gender differences in establishing close relationships (see McAdams 1989, and Perlman and Fehr 1987, for a review). For instance, when compared with men, women stressed emotional sharing in their friendships, but men emphasized common activities (Caldwell and Peplau 1982). Women seemed to develop earlier competence at establishing intimate relationships (Fischer 1981) and appeared to be more capable of experiencing intimacy in their relationships than did men (Hodgson and Fischer 1979). Older women were more likely to have confidants when compared with older men (Lowenthal and Haven 1968). When compared with men, women same-sex interactions appeared to be more pleasant, satisfying, meaningful, and involved more disclosure by either partner (Reis 1986). However, because these studies did not explicitly measure affiliation motivation with questionnaires or the TAT, it is difficult to know whether such behavioral differences are indeed due to a difference in motive strength. Males and females with equally strong affiliative motivation may still act quite differently.

One promising way to approach the sex differences issue, we believe, is to understand the social meaning of affiliativeness: What does it mean for a male or female to be affiliative in a social environment? Are they equally successful in fulfilling their affiliative goals? Do they perceive themselves differently? How would their self-perception reflect the differences in status and norms of male and

female groups? To answer these questions, one must, in our opinion, repeatedly study affiliative people in natural environments across different situations; one also needs to examine other personality characteristics that may not directly relate to affiliation but may nonetheless shed light on the understanding of the construct.

It is reasonable to expect that affiliation motivation and gender will affect different aspects of adolescents' daily experience. Affiliative people might spend more time thinking of, wishing to be with, and actually accompanying their friends. However, males and females may have different opportunities to socialize with others because the latter are expected to be more affiliative (e.g., Eagly 1987; Minton and Schneider 1980). With respect to the quality of experience, affiliative people should feel better when they are with friends. Yet gender will probably play a role in affecting the experience, so that affiliative females may feel better than others, but affiliative males may not.

The present study had two goals: first, to clarify the relationship between affiliation motivation and day-to-day experience and, second, to find out whether there are gender differences in the strength of the affiliation motive, the quality of experience, and their behavioral correlates. By focusing on (a) five elements of daily functioning—expressed wishes, thoughts, activities, companions, and feelings in different situations—and (b) other personality characteristics and self-image of affiliative people, we attempted to pinpoint the similarities and differences in the psychological reality of people with high and low affiliation motivation in general and highly affiliative boys and girls in particular.

Method

Subjects

Teachers from two suburban high schools in Chicago were asked to nominate freshmen and sophomore students who had talents in one or more of the following areas—mathematics, science, music, sports, and art—to participate in a 4-year longitudinal study.[2] All nominated students were invited to participate. Meetings were scheduled and letters were sent to both students and parents to explain the purpose of the study. They were (Old that the study was designed to learn about activities, thoughts, and feelings of adolescents; they were assured that the information they provided would be confidential. Out of 395 students, 228 agreed to participate. All of them had excellent grades in the relevant subject(s). The average grades in talented areas were 4D for science (4.0 for science honor students), 3.59 for mathematics (3.31 for mathematics honor students), 3.83 for music, 3.85 for sports, and 3.31 for art. The students were also very active in

[2] The longitudinal study, which was designed to examine why students failed to develop their talents, was completed while this article was being revised.

extracurricular activities related to their talents. The majority of the students were Caucasians from middle-class families of the suburbs of Chicago.

We selected 170 subjects (68 boys, 102 girls) according to two criteria:

(a) completion of the Personality Research Form (Jackson 1984) and
(b) use of the experience-sampling forms (ESF) for 1 week.

Data

Personality Research Form (PRF), Affiliation is measured by a well-established personality measure, the PRF (Form E; Jackson (1984), Affiliation is defined as "a tendency to enjoy being with friends and people in general; accept people readily, make efforts to win friendships and maintain association with others" (p. 6), Sixteen questions tap information about affiliativeness; they are embedded in questions that measure other characteristics. Subjects were asked to indicate "true" to the statements in PRF that described their characteristics and "false" to those that did not. A score was given to each question related to affiliativeness. We computed a composite score for each subject that was based on their answers to these questions. The total score can vary from 0 to 16. In addition, we also computed subjects' scores for the other personality variables measured by the PRF instrument.

Experience-Sampling Form (ESF). The bulk of the data was collected by the ESM (Csikszentmihalyi et al. 1977; Larson and Csikszentmihalyi 1983). This method allows the repeated measurement of subjects' everyday activities, thoughts, and experience in the natural environment. The reliability and validity of the method have been demonstrated in a number of studies (Csikszentmihalyi and Larson 1987). Subjects were asked to carry an electronic pager for I week and to answer questions on the ESFs whenever they were signaled. Each subject received seven to nine random signals about every 2 to 3 h daily, except twice more often during weekdays before 3:00 p.m., so as to get a more representative sample of all the classes they took. Because of the more frequent signals during this period, all observations gathered during this period of time were weighted as 0.5, and all other observations were weighted as I.

Subjects' expressed wishes were obtained by the question, "If you had a choice, who would you be with?" Their companions were indicated by the question, "Who were you with?" Subjects' thoughts and activities were measured by the questions, "What were you thinking about?" and "What was the main thing you were doing?" respectively. Responses from these open-ended questions were first coded in a large number of specific categories (for purposes not related to this study). Some of the categories were then collapsed according to the purpose of the study.

In the case of wishes and companions, responses were collapsed into two categories: friends and atone. The category of friends included mere acquaintances, good friends, boy friends, girl friends, and so on. Usually specific names were given. This category also included episodes in which students indicated that they were with friends and other people. In the case of thoughts and activities,

unstructured and informal social interactions were grouped into one category, and all other responses were grouped into another. Types of interaction included such activities as going to parties, dating, engaging in sex, talking with friends, meeting with old friends, listening to others talk, writing letters, talking on the phone, playing games, going downtown, cruising in a car, sightseeing, and arguing with friends. Responses mentioning a specific person that students were thinking about or wanted to be with were also put into this category.

Three experienced coders coded these questions. At first, each of them coded 20 ESFs and discussed the differences in their codes. Later, they coded 60 ESFs without discussing with one another. The interrater agreement ranged from 90–95 %. After this, they regularly checked their work with one another by coding the same ESFs,

Three experiential variables were measured by 7-point semantic differential items: happy–sad, alert–drowsy, involved–detached. The other variables—concentration ("How well were you concentrating?"), unselfconsciousness ("How self-conscious were you?" responses were recoded so that a high value implied not at all self-conscious), feeling good about oneself ("Did you feel good about yourself?"), wishing to be doing the activity ("Do you wish you had been doing something else?" responses were recoded so that a high value indicated a positive motivation), and control ("Were you in control of the situation?")—were measured by a 10-point scale ranging from *not at all* to *very much.* We chose these variables because we believe they represent some of the most important dimensions of one's quality of experience: affect, activation, cognitive state, motivation, and self-esteem Csikszentmihalyi and Larson (1984).

The responses we analyzed here were given by subjects who filled out at least 15 ESFs. Only those forms completed within 30 min after the signal were analyzed, A total of 6,507 valid responses were given; each subject responded approximately 38 times on average ($SD = 10.34$, range = 15–65).

Offer Self-Image Questionnaire (OSIQ). Information about subjects' self-image was provided by the OSIQ (Offer, Ostrov and Howard 1982). There were separate forms for boys and girls so that the questions would be appropriate and relevant. Subjects rated themselves on 130 questions on a 6-point scale, ranging from *describes me very well* (1) to *does not describe me at all* (6), Scores were assigned to each of the 11 subscales of self-image: impulse control, emotional tone, body image, social relationships, morals, vocational and educational goals, sexual self, family relationships, mastery of the external world, psychopathology, and psychological adjustment. Together they produced a score of general self-image.

Procedure

Each subject was scheduled to meet with a member of the research staff three to four times in an office at the school. During the first meeting, the use of the pager and items in the ESF were discussed. Subjects were again assured of the confidentiality

of the information they provided: Only the number assigned to each subject was used for identification, and the results of the study would be presented anonymously. They filled out a sample page of the ESF so that they could discuss with the staff members if they did not understand the questions, A background questionnaire about demographic information and family relationships was also filled out.

The ESFs were bound in small pads (5.5 in. × 8.5 in.). Each pad had about 15 self-report forms. During the week, subjects received 7–9 random signals approximately every 2 h per day, between 7:00 a.m. and 10:00 p.m. on weekdays and between 9:00 a.m. and 12:00 a.m. on weekends. They returned for another meeting with the staff member after the paging procedure was done. During this meeting, students were debriefed. They were asked to describe their experience during the week and whether they had problems with the pager. Finally, the PRF was given to subjects to complete at home.

Results

Affiliation Scores

The affiliation scores of all of the students completing the PRF ranged from 2 to 16 ($M = 10.83$, $SD = 3.05$). There was a significant, though relatively small, difference between the mean score of boys ($M = 10.20$, $SD = 3.02$) and of girls ($M = 11.24$, $SD = 3.03$), $t(169) = -2.19$, $p < 0.05$. The median score was 10 for male respondents and 12 for female respondents.

For the following analyses, male and female students who had affiliation scores below or equal to the median of their groups were classified as the low group. Those who had scores above the median were classified as the high group.

Expressed Wishes

The percentages of episodes in which students indicated that they wished to be (a) with friends and (b) alone were calculated for each person. A two-way analysis of variance (ANOVA) using affiliative orientation (low and high[3]) and gender (male

[3] Those who had scores above the median were classified as the high group. Regression analyses using affiliation as a continuous variable and sex as a dummy variable were also carried out. The results were similar to the analysis of variance results reported here. However, using affiliation as a continuous variable created difficulties in the repeated measures design that tested the effect of affiliation, sex, and situation (a repeated measure) on the quality of experience There was no easy way to test the interaction between a repeated measure and a continuous variable in the SPSS-X program (SPSS 1986) that we used and other statistical packages that were available to us. To be consistent, we derided to treat affiliation as a categorical variable throughout the report.

Table 16.1 Percentage of wishes and companions concerning friends and solitude

Affiliation	Friends		Alone	
	Low	High	Low	High
Wishes				
Boys	54.60	58.87	23.66	20.34
Girls	56.12	68.92	22.28	12.83
Companions				
Boys	18.70	18.98	30.26	29.27
Girls	23.29	28.42	24.59	25.29

and female) as factors was computed separately for the two types of episodes. Both types of episodes were highly dependent on affiliative orientation *friends,* $F(1,166) = 7.00$, $p < 0.01$; *alone,* $F(1,166) = 7.92$, $p < 0.01$, but had no relationship with gender, *friends,* $F(1, 166) = 0.14$, ns*; alone,* $F(1,166) = 2.65$, ns. No interaction effect was found, *friends,* $F(1,166) = 1.41$, ns*; alone,* $F(1, 166) = 1.48$, *ns.* Regardless of gender, highly affiliative students more often wished to be with friends and less often wished to be alone than less affiliative students (see Table 16.1).

Companions

The percentages of episodes in which respondents indicated that they were (a) with friends and (b) alone were computed for each person. A two-way ANOVA using affiliative orientation and gender as factors was performed separately for the *friends* and *alone* episodes. The main effect for gender was significant, *friends.* $F(1,166) = 16.33$, $p < 0.001$; *alone.* $F(1,166) = 7.48$, $p < 0.01$, for both episodes, but the main effect for affiliative orientation, *friends,* $F(1,166) = 3.71$, $p = 0.06$; *alone,* $F(1,166) = 0.00$, ns, was not. There was no interaction between the two factors *friends,* $F(1,166) = 0.15$, ns; *alone,* $F(1,166) = 0.23$, ns. Regardless of affiliative orientation, women spent more time with friends and less time alone than did men (see Table 16.1).

Activities

The percentage of episodes in which respondents indicated that they engaged in social interactions (such as talking, parties, going out with friends) was calculated for each person. We computed a two-way ANOVA with affiliation and gender as factors. Both the main effect for sex, $F(1,166) = 26.39$, $p < 0.001$, and the Sex × Affiliation interaction, $F(1,166) = 4.60$, $p < 0.05$, were significant. The main effect for affiliation was not, $F(1,166) = 2.89$, $p = 0.09$. The results revealed an interesting pattern (see Table 16.2). Highly affiliative girls more often reported

Table 16.2 Percentage of thoughts and activities related to social interaction

Affiliation	Social interaction	
	Low	High
Activities		
Boys	10.30	9.22
Girls	14.29	18.51
Thoughts		
Boys	6.57	11.78
Girls	14.47	20.94

engaging in social interactions with others than did less affiliative girls. However, the difference between highly affiliative boys and less affiliative boys was much smaller and was in an opposite direction. Highly affiliative boys actually reported a slightly smaller percentage of social interaction episodes than did less affiliative boys.

Thoughts

The percentage of episodes in which students reported interpersonal thoughts concerning friends and social interactions was calculated for each person. Again, a two-way ANOVA with affiliative orientation and gender as factors was computed. The main effects for affiliative orientation, $F(1,166) = 12.91$, $p < 0.001$, and gender, $F(1,166) = 25.43$, $p < 0.001$, were both significant. No interaction effect was found, $F(1,166) = 0.14$, ns. Highly affiliative students more often thought about friends than did less affiliative ones. Female respondents reported more interpersonal thoughts than did boys (see Table 16.2).

Quality of Experience

The experiential variables (happiness, alertness, concentration, unselfconsciousness, feeling good about oneself, motivation, involvement and control) were first aggregated within each person to obtain average scores for two conditions: when they were accompanied by friends and when they were alone. A three-way ANOVA with affiliation (low vs. high), sex (boys vs. girls), and situation (friends vs. alone) as a repeated measure was performed.

Tables 16.3 and 16.4 contain the mean scores and the F and p values of eight experiential variables. For the sake of clarity, only the general pattern of results is discussed here. As shown in Table 16.4, the situation effect was significant for all variables. Students reported feeling better (happier, more alert, less self-conscious, better about themselves and more in control) when they were with friends than when they were in solitude. The Sex × Affiliation interaction was significant for

Table 16.3 Mean scores of experimental variables while with friends and alone

Affiliation	Friends		Alone	
	Low	High	Low	High
Happy				
Boys	5.08	4.96	4.51	4.42
Girls	5.05	5.52	4.59	4.84
Alert				
Boys	5.17	4.86	4.20	3.92
Girls	4.85	5.27	4.47	4.48
Concentration				
Boys	4.14	3.54	4.60	4.37
Girls	4.18	4.25	4.34	4.34
Unselfconsciousness				
Boys	5.94	5.07	6.57	6.08
Girls	6.15	5.77	6.77	6.96
Wish				
Boys	5.81	4.74	4.66	3.68
Girls	4.86	4.94	4.15	4.25
Feeling good about oneself				
Boys	5.88	5.95	5.26	4.90
Girls	5.22	5.90	4.80	5.44
Involved				
Boys	4.55	4.56	4.25	4.16
Girls	4.34	4.86	3.92	4.32
Control				
Boys	6.11	5.96	6.73	6.01
Girls	5.65	6.28	5.93	6.76

all variables except concentration and unselfconsciousness. Affiliation seemed to affect the male and female students quite differently.

Highly affiliative girls reported more positive experience than did less affiliative girls while they were with friends. Subsequent t tests comparing the two groups found that the former group felt significantly happier, $t(100) = 3.00$, $p < 0.01$, more alert, $t(100) = 2.28$, $p < 0.05$, better about themselves, $t(100) = 2.15$, $p < 0.05$, more involved, $t(100) = 3.52$, $p < 0.001$, and more in control, $t(100) = 2.23$, $p < 0.05$, than the latter group. However, the experience of highly affiliative and less affiliative boys did not differ much. One surprising exception was that the former had significantly lower motivation than did the latter, $t(66) = -2.25$, $p < 0.05$.

When they were alone, highly affiliative boys and girls again had quite different experiences. Whereas the former felt worse than other boys, the latter actually had better experiences than other girls. When compared with other boys, highly affiliative boys reported significantly lower motivation, $t(66) = -1.99$, $p < 0.05$, and felt less in control, $t(66) = -2.20$, $p < 0.05$. Highly affiliative girls, on the other

Table 16.4 Analysis of variance table with affiliation (A), sex (B), and situation (C) as factors and experiential variables as dependent measures

Source	*F*	*df*	Source	*F*	*df*
	Happy			*Concentration*	
Between subjects			Between subjects		
A	1.67	1	A	1.13	1
B	6.54**	1	B	0.41	1
A × B	5.39*	1	A × B	1.51	1
Error		165	Error		166
Within subjects			Within subjects		
C	57.41***	1	C	6.56**	1
C × A	0.34	1	C × A	0.25	1
C × B	0.01	1	C × B	2.99	1
C × A × B	0.66	1	C × A × B	0.55	1
Error		165	Error		166
	Alert		*Unselfconsciousness*		
Between subjects			Between subjects		
A	0.11	1	A	2.50	1
B	3.96*	1	B	4.05*	1
A × B	4.91*	1	A × B	1.41	1
Error		166	Error		166
Within subjects			Within subjects		
C	63.47***	1	C	19.78***	1
C × A	0.98	1	C × A	1.46	1
C × B	3.54	1	C × B	0.05	1
C × A × B	1.34	1	C × A × B	0.07	1
Error		166	Error		166
	Wish			*Involved*	
Between subjects			Between subjects		
A	4.81*	1	A	3.02	1
B	0.66	1	B	0.02	1
A × B	6.89*	1	A × B	4.28*	1
Error		166	Error		164
Within subjects			Within subjects		
C	19.45***	1	C	66.20***	1
C × A	0.02	1	C × A	1.13	1
C × B	1.02	1	C × B	1.57	1
C × A × B	0.01	1	C × A × B	0.03	1
Error		166	Error		164
Feeling good about onself				*Control*	
Between subjects			Between subjects		
A	1.85	1	A	0.46	1
B	0.68	1	B	0.04	1
A × B	4.62*	1	A × B	7.52**	1
Error		166	Error		165

(continued)

Table 16.4 (continued)

Source	*F*	*df*	Source	*F*	*df*
Within subjects			Within subjects		
C	19.28***	1	C	36.58***	1
C × A	0.64	1	C × A	2.59	1
C × B	1.79	1	C × B	0.11	1
C × A × B	0.46	1	C × A × B	10.43***	1
Error		166	Error		165

*$p < 0.05$
**$p < 0.01$
*** $p < 0.001$

hand, felt better about themselves, $t(100) = 2.01$, $p < 0.05$, were more involved, $t(100) = 2.06$, $p < 0.05$, and were more in control, $t(100) = 2.65$, $p < 0.01$.

So, in general, affiliative girls seemed to feel better than less affiliative girls in both friends and alone situations. The reverse was true for boys, although there were fewer differences between affiliative and less affiliative students when compared with the female group.

Relationship Between Affiliation and Other Personality Variables

To examine whether the relationship between affiliation and other variables was different for male and female students, a factor analysis (principal-components analysis with varimax rotation) of the Jackson Personality Questionnaire was carried out. Among male students, affiliation loaded on the same factor with succorance, nurturance, sentience, exhibition, and play (factor loadings were 0.70, 0.57, 0.75, 0.73, 0.53, and 0.48, respectively). Among girls, affiliation loaded on the same factor with dominance, exhibition, play, and nurturance (factor loadings were 0.86, 0.46, 0.83, 0.68, and 0.34, respectively). Although dominance also had loadings on other factors for girls, it had the strongest relationship with the factor that was made up of affiliation and other variables. However, among boys, dominance loaded highly on the same factor with aggression, defendence, abasement, exhibition, and social recognition (factor loadings were 0.68, 0.75, 0.77, 0.76, 0.60, and 0.34, respectively) and had no relationship with other factors.

Affiliation was significantly correlated with the Social subscale of the OSIQ for both boys, $r(69) = 0.45$, $p < 0.001$, and girls, $r(95) = 0.63$, $p < 0.001$. However, only psychological adjustment, $r(95) = 0.33$, $p < 0.001$, and emotional tone, $r(95) = 0.31$, $p < 0.01$, correlated significantly with affiliation for girls, No such relationships were observed among boys, $r(69) = 0.07$, ns, and $r(69) = -0.04$, ns.

Discussion

In this article, we have treated affiliative motivation as if it was a single independent dimension of personality. Other writers see affiliation as part of a more general personality characteristic, such as extraversion (Costa and McCrae 1988). It is both theoretically and empirically useful to look for ways to classify individual traits (e.g., Buss and Finn 1987; Eysenck and Eysenck 1984; Goldberg 1982; John et al. 1984; Kline and Barrett 1983; McCrae and Costa 1987; McCrae et al. 1986; Peabody 1984). Such classifications would enable researchers to understand traits in a new light. For instance, different levels of different needs (e.g., high needs for affiliation, play, and exhibition but low needs for autonomy) can be considered as a high-order trait (e.g., extraversion), and its relationship with behavior can be examined. Our purpose, however, was to understand better how a specific orientation toward other people (i.e., need for affiliation) is related to actual everyday behavior. This is of course not to undermine the importance of examining affiliation together with other traits,

In general, affiliation motivation seems to have the strongest relationship with expressed wishes for being with others, whereas gender appears to affect what actually happens in everyday life: the time one spends with different companions and the time one engages in different activities. Moreover, affiliation motivation also interacts with gender to affect one's experience.

The frequency of interpersonal thoughts was affected by both affiliation and gender. Respondents with a high affiliative orientation had a higher percentage of thoughts about social interaction than those who were less affiliative. Girls reported approximately twice as many interpersonal thoughts as did boys. Considering the relationship between affiliation and gender on the one hand and wishes, companions, and activities on the other, this result was not surprising. What one thinks about is usually related to what one wishes to do, who one is with, and what one is actually doing.

When given a choice, both male and female adolescents with high affiliative orientation wished to be with friends more than their peers with low affiliative orientation. The latter more often preferred to be alone than did the former. However, gender, not affiliative orientation, predicted the amount of time respondents actually spent with friends or spent alone. Regardless of their affiliative orientation, female students spent significantly more time with friends and less time alone than did male students. Respondents' activities revealed an interesting difference between highly affiliative boys and girls. Highly affiliative girls more often engaged in informal social interactions such as talking, parties, and going out with friends than did less affiliative girls. No such difference was found, however, between boys of different affiliative orientation.

The analysis on experience revealed that there was a significant Affiliation $\times$ Gender effect on most experiential variables. Separate I tests confirmed that highly affiliative girls appeared to feel better than less affiliative girls when they were

with friends and alone. The reverse was true for affiliative boys; they felt worse than less affiliative boys in both situations,

Highly affiliative girls and boys indeed appeared to have different characteristics, as indicated by other personality variables in the PRE Highly affiliative boys tended to think that they had feminine characteristics, as revealed by PRF variables such as succorance (defined as frequently seeking the sympathy, protection, love, advice, and reassurance of other people), sentience (defined as noticing smells, sounds, sights, tastes, and the ways things feel) and nurturance (defined as giving sympathy and comfort, assisting others whenever possible). Yet highly affiliative girls did not see themselves as dependent (succorance had no relationship with the factor that affiliation loaded on). They tended to perceive themselves as dominant (defined as attempting to control environment and to influence or direct other people). For boys, dominance loaded on the same factor with aggression, instead of affiliation.[4] Moreover, affiliative girls also tended to see themselves as adjusting well to their environment and had a positive emotional tone, but affiliative boys did not.

In other words, affiliative girls were likely to think that they were influential, whereas affiliative boys did not. What accounted for these differences in self-perception? How may these differences relate to the behaviors and experience of highly affiliative people in social interactions?

There may be many plausible explanations for these questions. Here we focus on the one that interests us most: the social prescription of sex-typed behaviors. Most societies prescribe certain roles—that is, rights, duties, and obligations—for the two sexes. In the United States, the growing egalitarian statuses between the two sexes have removed many gender-role stereotypes. Yet numerous studies have demonstrated that women are still believed to be more communal (i.e., sociable, friendly, gentle, and warm) and men more agentic (i.e., independent, dominant, assertive, and aggressive; e.g., Bakan 1966; Bern 1974; Berninger and De Soto 1985; Broverman et al. and Rosenkrantz 1972; Deaux and Lewis 1983; Eagly 1987; Spence and Helmreich 1978). There is also evidence that people actually behave in such ways. For instance, girls as young as 4 years old were more likely to avoid conflict by taking turn in social play, and boys were more likely to struggle for dominance (DiPietro 1979), Relationships, social responsibilities, and human interdependence were more salient in the lives of women than of men (Belenky et al. 1986; Giltigan 1982; Miller 1986).

Gender roles regulate behavior in at least two ways: (a) They generate behavioral expectations (e.g., what is appropriate or inappropriate) to which people usually conform (Eagly 1987) or internalize (Maccoby 1980), and (b)

[4] Note that adolescent girls were significantly higher than boys on succorance, sentience, and nurturance but that boys were significantly higher in dominance in the normative data of the Personality Research Form manual (Jackson 1984). In this sample also, girls were significantly higher on succorance, sentience, and nurturance. The mean scores of succorance and nurturance for boys and girls were significantly different: for succorance, male $M = 6.83$, Female $M = 9.76$, $t(169) = -5.89$, $p < 0.001$; for sentience, male $M = 8.41$, female $M = 10.79$, $t(169) = -5.90$, $p < .001$; for nurturance, male $M = 9.54$, female $M = 12.35$, $t(108.55) = -6.17$, $p < 0.00$.

experience in certain roles also creates opportunities for people to develop certain skills and beliefs that are related to those roles (Eagly 1987).

Both social pressure and internalization of values about human relationships and interdependence might have accounted for the larger amount of time female students spent with friends and in informal social interaction. Male students might be more ambivalent about spending time with others, even if they wanted to, because affiliative behaviors would probably be regarded as "sissy" If having a communal orientation is considered a gender-appropriate characteristic for females, the preference for establishing and maintaining friendships (affiliation) would be deemed valuable. As such, it is not surprising that affiliative female students tended to feel that they were influential among the people they knew. Affiliative boys did not seem to have such a tendency. Among male students, an influential boy was more likely aggressive rather than affiliative.

The amount of time that highly affiliative girls spent with others allowed them to develop the skills they needed to enjoy the experience. Affiliative boys might lack the experience to develop the skills that were necessary to enjoy social interaction. So even though affiliative boys liked to be with people, their experience was not more positive than that of other boys.

Affiliative girls reported better experiences in both friends and alone situations than did other girls, but affiliative boys felt worse than other boys in both situations. Adolescents who have gender-appropriate characteristics might be better adjusted. There is less social pressure for them to behave in ways that contradict their personality. They do not have social pressure to act differently. If this is true, one wonders how people with personality characteristics that are different from gender stereo-types can improve their quality of experience.

As such, the experience and self-perceptions of highly affiliative people are a product of the interaction between their personality and social environment. Affiliation motivation must be understood in a context of social values and social expectations. Experience is therefore both an individual and a social creation.

The fact that students in this study were talented may raise concern about the generalizability of the findings. Yet a comparison between this sample and a normal sample of comparable age (Csikszentmihalyi and Larson 1984) showed no major differences in the amount of time spent and quality of experience in different activities, locations, and with different companions (Csikszentmihalyi et al. 1987). The mean scores of affiliation in this study also did not significantly differ from the norms of PRF provided by Jackson (1984). Therefore, the results seem to be applicable to the general adolescent population. It would be interesting, however, to replicate this study with other adolescent samples of different characteristics or with an adult sample. These studies would supply additional information concerning affiliation motivation and daily experience.

The results of this study bring up a number of issues. First, if male and female adolescents do indeed differ in how successful they are in developing friendships and in how much they enjoy them, the nature of their affiliation motive and their ability to enjoy relationships in adulthood may also be different. One hypothesis is that males' affiliation motive may be described as a fear of rejection: a strong

desire to interact with others triggered by unfulfilled wishes and yet a lack of skills to enjoy the interactions. Females' affiliation motive would be better described as positive enjoyment: a strong desire to interact with others resulting from positive experience and an ability to enjoy the interactions. Another hypothesis is that if adolescent boys indeed have fewer opportunities to be with friends regardless of their affiliation motive, they will be less skillful socially in adulthood when compared with women. Developing intimate relationships with others requires skills and experience. This study suggests that girls have more opportunities to acquire such experience in adolescence. So women quite possibly will report more satisfaction and intimacy in their relationships with others.

Some studies seem to support these conjectures (e.g., Booth 1972; Brehm 1985; Cozby 1973; Reis 1986). Women indicated more intense (i.e., affectively strong) friendships and that they disclosed more personal information to their friends. Moreover, women generally scored higher than men on the TAT measure of intimacy motivation, which is designed to avoid themes of fear of rejection and to capture the more affirmative aspects of the need for establishing social relationships (McAdams 1989; McAdams et al. 1988). Although male's affiliation motive might contain themes of fear of rejection, men did not seem to have a fear of intimacy, as manifested in the amount of violence imagery in responses to TAT pictures of affiliative situations (McAdams et al. 1988). For further information concerning the debate about whether men perceive danger in intimacy, see Pollak and Gilligan (1982, 1983) Benton et al. (1983), and Weiner et al. (1983).

Second, optimal experience depends on the successful negotiation between the person and the environment. People may face numerous problems if their personality does not match the gender stereotypes of their society. One wonders how and whether affiliative boys can overcome these problems. Will they develop into adults who cannot enjoy their relationships with people? Will they become less positive in their overall experience because of the difficulties they confront in their social life?

Third, researchers studying sex differences in affiliation need to specify the opportunities for motive satisfaction that are available in the social environment—that is, how social stereotypes affect one's choice of actions and experience. The opportunities for affiliation are perceived differently by people across society and across different groups (e.g., occupations, age) within the same society. For instance, the environment of male counselors may afford more opportunities (Harvey and France 1982), whereas the environment of female business managers may not (Chusmir 1985). Similarly, an adolescent group like the one in this study may afford more opportunities to socialize than an adult group (e.g., Costa and McCrae 1988). A failure to consider the interaction between the person and the environment may explain the numerous inconsistent findings in studies of this area.

Last, a few comments about methodology. To understand the Personality × Situation interaction, the ESM seems to be a useful and sometimes indispensable tool. This technique helps to detect discrepancies between the desired (wishes) and the actual state of daily life (companions and activities) and to examine experience repeatedly across situations. It also complements the results of other personality

tests because it discloses the affiliation motive in action: how the motive energizes the person to wish, to think, to act, and to feel in different circumstances, thus making an interactional view of personology (e.g., Mischel 1981) both theoretically and empirically meaningful.

In conclusion, the study confirms the relationship between affiliation motive and daily experience and helps to specify how gender affects the relationship. We examined how affiliation motive relates to different aspects of daily life of male and female adolescents. We also tried to interpret affiliation motive with respect to other personality characteristics and to understand the motive in a broader social perspective.

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Chapter 17
Relations Between Identity in Young Adulthood and Intimacy at Midlife

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This study examines the relation between the development of ego identity by young adulthood and the establishment and maintenance of stable and enduring intimate interpersonal relationships by midlife. This relation was investigated further in order to discover how it might differ between men and women. The Identity Scale was first cross-validated with other personality measures before being related to subsequent intimacy patterns. The achievement of ego identity was found to be important for the establishment (for men) and stability (for women) of marital relationships. Additional sex differences in happiness and spheres of life satisfaction were also explored. These differences suggest differing developmental courses for young men and women as they establish themselves in the adult world.

Do people who achieve a strong sense of identity by the end of adolescence lead lives that are different from those who do not? There is no systematic evidence concerning the long-term consequences of the attainment of a personal identity during young adulthood. The availability of longitudinal data from a sample of art students across a period of 18 years from 1963 to 1981 makes it possible to address empirically questions regarding the applicability and validity of the Eriksonian construct of identity for this subsample of the population.

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The present article will attempt to identify the relations, if any, between a measure of identity taken during early adulthood and measures of the achievement of intimate relationships and other related factors collected 18 years later. The specific questions addressed are (a) Can a measure of personal identity administered during young adulthood predict the achievement of intimate relationships years later? (b) Should the intimacy resulting from a strong sense of identity be conceived of as a similar or different situation for men and women? and (c) Is the relation between early identity and indicators of well-being in midlife different for males and females as well?

The first question emerges from Eriksonian theory. According to Erik Erikson's epigenetic stage theory of psychosocial development, the establishment of a firm sense of ego identity is an essential bridge between childhood and adulthood. Although the process of identity formation is lifelong, the "time of ascendency" occurs during late adolescence. The main challenge during this period is the integration of past identifications, present drives, and social roles. The outcome of this integration is a sense of personal continuity or inner sameness (Erikson 1963).

The stage following adolescence is young adulthood. The bipolar outcomes of this stage are intimacy and isolation. Erikson (1963) claimed that a successful resolution of the crisis of identity is necessary before one is capable of successfully resolving this next crisis. In turn, a positive resolution of the tensions at this stage is a requirement for success in the following adult stages and challenges. Intimacy can be defined as "the capacity to commit [oneself] to concrete affiliations and partnerships and to develop the ethical strength to abide by such commitments" (Erikson 1963, p. 263). Genital maturity and mutuality are also important aspects of intimacy. The lack of these qualities can lead to isolation.

The Eriksonian paradigm is that "it is only after a reasonable sense of identity has been established that real intimacy with the other sex (or for that matter, with any other person) is possible" (1959, p. 95).

In terms of the second question, whether different paths lead to identity for the two sexes and whether the outcomes of identity achievement are different for men and women, Erikson has written little. Statements about female identity have been limited to the processes inherent in the female "productive inner space," that is, the female anatomy, specifically the reproductive system (Erikson 1968, pp. 261–294, and 1975, pp. 225–247). Marcia and Friedman claimed that "a consistent theoretical formulation and the experimental operations necessary to establish its validity have not been carried out for ego identity in women" (1970, p. 247). Gilligan (1982) argued that Erikson's developmental theory is based on male development and claimed that his writings on the "inner space" are inadequate (pp. 11–13). Both Douvan and Adelson (1966) and Erikson (1968) suggested that the achievement of intimacy may occur concurrently with, or even prior to, the achievement of identity in women, Gilligan concluded that women need to be understood on their own developmental terms and discussed the necessity of further research as well as the creation of new models that focus specifically on women's development.

The third question, concerning behavioral-emotional outcomes of identity achievement, is implied by the Eriksonian model. Presumably, those individuals who have attained ego identity are reasonably well adapted to their social environment and should consequently experience a sense of well-being.

Method

Sample

In 1963, a wide range of demographic and psychometric data were collected from 281 of the 321 sophomores and juniors enrolled at that time at one of the foremost art schools in the country, although each student did not necessarily complete all the measures. A complete description of the sample and procedures can be found in the work of Getzels and Csikszentmihalyi (1976). These data make up the Time 1 data base.

In 1981, 208 of these subjects completed a follow-up questionnaire. This questionnaire contained both open-ended and checklist type questions regarding the students' personal, family, and professional life since leaving art school (Time 2). The final sample comprises 166 individuals who both completed the Identity Scale in 1963 and provided information concerning intimacy in 1981.

Measures

Identity scale (Time 1). The measure of identity used in this study is a paper-and-pencil test based on the Eriksonian model, the Identity Scale (Hess et al. 1968). It consists of 56 pairs of words or phrases meant to elicit responses pertaining to the issue of identity. One item of each pair denotes the negative possibility of a developmental issue, the other, the positive (Henry and Sims 1970, p. 60).

The scale is constructed as a 7-point bipolar choice semantic differential. The measure used in the present study is the general identity factor isolated in previous studies (Henry and Sims 1970), which sums 14 of the 56 items for men and 17 of the 56 for women. The scores for men and women assess male and female aspects of identity, based on the clusterings found in the factor analytic studies on over 500 men and women in various professions. The differences in content between the male and female factors are that for men, there are additional items reflecting instrumental competence aspects of identity **(e.g., *unprepared-ready, skilled-unskilled)***, whereas for women the additional items seem geared more toward measuring emotional integration and control **(e.g., *emotionally disorganized-emotionally integrated, anxious-secure).***

Although the Eriksonian identity construct is complex and multidimensional, the broad outlines of the differences between identity achievement and identity diffusion seem to be effectively assessed by this instrument. It was originally developed in conjunction with extensive interviews with a group of 14 actors. This semistructured interview was quite similar to the Marcia (1966) interview (which it predates by a number of years) although only two rather than four identity statuses were assessed.

Intimacy (Time 2). The measure of intimacy used in this study is marital status as reported on the 1981 questionnaire. Subjects were asked to check one of the following categories: never married, living together, married, separated, divorced, or widowed. A second question elicited the number of divorces. From these two questions the following categories could be discriminated: married-never divorced, married-previously divorced, married-marital history unknown, and never married.

There are both advantages and disadvantages to using marital status as a measure of Eriksonian intimacy. Erikson describes intimacy in broad terms, focusing on the aspects of heterosexual mutuality and genital maturity. He also views intimacy as the foundation for future generativity, which is defined as the provision of care and sustenance to future generations. Marriage is the socially normative institution in which these functions occur. As with other Eriksonian concepts, it is difficult to operationalize intimacy and at the same time succeed in capturing its richness and complexity. While recognizing that intimacy can and does occur outside of marriage and that marriage does not necessarily insure intimacy, the normative environment on which Erikson bases his claims is that of marriage (Erikson 1963). Marriage is, in addition, a clearly defined social institution and as such, it provides a socially based context for intimacy. Furthermore, the status of marriage is clear and explicit, making it easily measured. Finally, in light of the apparent waning of the institution of marriage, it is likely that those individuals who continue on in a marriage also maintain a strong sense of intimacy as well.

Additional measures. Other scales from both 1963 and 1981 are used in this study to draw a more complete picture of what identity and the process of its achievement look like for men and women. These additional measures will be described as necessary in the Results section.

Results

To investigate the validity of the Identity Scale as a measure of Eriksonian identity, scores on the Identity Scale were correlated with those obtained on the 16 Personality Factors Scale (16PF) and the Paired Direct and Projective Questionnaire, all of which were administered at Time 1. The 16PF is a widely used broad-based measure of personality that is designed to measure 16 basic characteristics. Taken together, these characteristics produce a comprehensive personality profile (Cattell and Stice 1962). The resulting pattern of correlations, shown in Table 1,

Table 1 Construct validity of the identity scale by Cattell's 16 personality factors (16PF) and the paired direct and projective questionnaire (PDPQ)

Measure	Men ($n = 67$)	Women ($n = 75$)	Total
I6PF	–	–	–
Ego Strength	0.51***	0.28**	0.41***
Superego	0.16	0.36***	0.24***
Self-Sentiment	0.24*	0.38***	0.30***
Parmia	0.39***	0.35***	0.37***
Shrewdness	0.23*	0.35***	0.28***
Ergic Tension	−0.47***	−0.33***	−0.41***
Protension	−0.33***	−0.15	−0.25***
Guilt	−0.37***	−0.35***	−0.37***
Self-Sufficiency	0.10	−0.18	−0.03
Surgency	−0.03	0.16	0.08
Cyclothymia	0.06	0.26**	0.16*
PDPQ	–	–	–
ProjNeg	−0.02	−0.32***	−0.19**
DirNeg	−0.29**	−0.45***	−0.37***
Consist	0.23*	0.21*	0.19**

Note. ProjNeg = negative responses on projective (third person) form; DirNeg = negative responses on direct (first person) form; Consist = difference between ProjNeg and DirNeg
* $p < .05$
** P < .01
*** p < .00 1

lends support to the premise that the Identity Scale is indeed measuring something that approximates what Erikson means by *identity*.

As can be seen in Table 1, individuals with an established identity tend to be more controlled and practical. Scores on the Identity Scale are positively correlated with the following 16PF items for both men and women; stability (Ego-Strength), venturesomeness (Parmia), worldliness (Shrewdness), conscientiousness (Superego; significant for women, approaching significance for men), and awareness of social norms (Self-Sentiment).

Identity is correlated negatively with the following 16PF items for both men and women: tension and anxiety (Ergic Tension), guilt and insecurity (Guilt), and suspicion and jealousy (Protension; significant for men, approaching significance for women).

There were certain sex differences in the pattern of results. The women, but not the men, displayed a significant correlation between identity and the 16PF factor that measures social outgoingness (Cyclothymia). The negative relation between identity and a measure of autonomy (Self-Sufficiency) approaches significance for women, as does the positive relation between identity and a measure of enthusiasm and frivolity (Surgency).

The Paired Direct and Projective Questionnaire yields a direct measure of negative or antisocial feelings (DirNeg in Table 1) as well as a projective measure of negative or antisocial feelings (ProjNeg). In addition a measure of personality

consistency (Consist) can be created by computing the difference between projective negative responses and direct negative responses (see Getzels and Csikszentmi-halyi 1976; Getzels and Walsh 1958). The stronger the identity for both men and women, the less unsocialized feelings emerged on the direct measure. The women also displayed a relation between higher identity and lower projective negative responses. Even more striking is the fact that for both men and women a strong identity goes hand in hand with personality consistency.

As a composite picture, individuals having a strong identity are self-confident, relaxed, reasonably comfortable in society, secure, and integrated. This picture parallels Erikson's description of people who have been successful in achieving identity, in other words, who are comfortable with themselves as well as comfortable within their social roles. In terms of the sex differences mentioned, it is clear also that women's identity is for the most part similar to men's in terms of its personality correlates, except in the case of autonomy-dependency. Dependency clearly represents a part of female identity, whereas this is simply not the case for men. This rather striking exception is consistent with the notion that identity for women is intertwined with intimacy concerns. Sex differences in identity have surfaced in a number of studies (Marcia and Friedman 1970; Matteson 1975). As Gilligan (1982) put it: The elusive mystery of women's development lies in its recognition of the continuing importance of attachment in the human life cycle. Woman's place in man's life cycle is to protect this recognition while developmental litany intones the celebration of separation, autonomy, individuation, and natural rights. (p. 23).

Identity and Marital Status

The central focus of this study is the relation between identity and intimacy. Table 2 contains the results of the analyses. The sample was first divided across the median on the independent variable (i.e., the identity factor score); this yielded two groups: those high and those low on identity at Time 1. Then the sample was divided into two groups in terms of intimacy: (a) an ever married group, consisting of respondents who were in the married-never divorced, married-previously divorced, married-marital history unknown, separated, and divorced categories, and (b) a never married group. Analyses comparing ever married and never married by identity level were performed for the total sample as well as the two sexes separately. The chi-square statistic was used to test the significance of these relations. This first test indicates that there is a relation between identity and marital status. Of those who had not married by 1981, twice as many had been below the median on identity in 1963.

However, the overall pattern is overshadowed by sex differences. For men, there is a strong relation between having low identity and remaining single. Of 11 men who in 1981 reported that they had never been married, 10 had scores that fell below the median on identity. Put differently, only 1 of the 35 men with high

Table 2 1981 Marital Status by Identity and Marital Disruption by Identity

Measure	Women	Men	Total
Marital status			
Ever married	–	–	–
Low identity	34	26	60
High identity	41	34	75
Total	75	60	135
Never married	–	–	–
Low identity	6	10	16
High identity	7	1	8
Total	13	11	24
Both groups	–	–	–
Low identity	40	36	76
High identity	48	35	S3
Total	83	71	159
X^2	.003	8.14**	4.03*
Marital disruption			
Absent	–	–	–
Low identity	8	11	19
High identity	18	12	30
Total	26	23	49
Present	–	–	–
Low identity	18	9	27
High identity	11	12	23
Total	29	21	50
Both groups	–	–	–
Low identity	26	20	46
High identity	29	24	53
Total	55	44	99
X^2	5.38*	.11	2.3

* $p < .05$
** $p < .01$

identity was unmarried by 1981. Women, on the other hand, show little difference in identity between the ever married and never married groups. This lack of a difference is surprising considering that marriage is traditionally thought to be more a part of female identity.

Next, respondents in the ever married group who had achieved marital stability were contrasted with those who had experienced marital disruptions. Respondents who were in the married-never divorced category made up the marital stability group, and those who were either divorced, separated, or married-previously divorced constituted the marital disruption group.

As shown in the lower half of Table 2, for women there was a strong relation between identity and marital stability. More than two thirds of the low identity women experienced marital disruption. Men with stable and unstable marriages did not differ in terms of identity. Identity in young adulthood does appear to be

Table 3 Correlations Between Identity and Well-Being for Men and Women

Measure	Men		Women	
	n	*r*	*n*	*r*
Satisfaction	–	–	–	–
Total	71	.27**	84	.17
Family life	71	.17	80	–.01
Standard of living	72	.26**	85	.24**
Occupation	72	.20*	81	.02
Friendships	73	.01	86	.16
Happiness	–	–	–	–
Total	55	.25*	74	.24*
1964	55	−02	74	.02
1966	57	−.01	75	.16
1968	57	−.04	75	.16
1970	57	−.03	75	.20*
1972	57	.12	75	.02
1974	57	.23*	75	.28**
1976	57	.26*	74	.17
1978	57	.22*	74	.07
1980	57	.39**	75	.21*

Note. Correlations are for happiness and satisfaction as reported in 1981
Total happiness = average of happiness scores from 1964 to 1980
* $p < .05$
** $p < .01$

predictive of future marital status for both men and women, but in different ways. Men with low identity are more likely to remain unmarried. Women with low identity, on the other hand, are just as likely to marry as are women with high identity. The difference is that low identity women are more likely to experience breakups in their marriages. For men, identity bears little relation to the stability of marriage.

Identity and Well-Being

To further explore the relations between identity and intimacy, the identity factor was correlated with various measures of retrospectively reported well-being in the 1981 questionnaire. The results are presented in Table 3.

The questionnaire contained five questions relating to the self-reported satisfaction with various aspects of life. The areas of family life, occupation, standard of living, friendships, and life as a whole (total satisfaction) were rated on a 7-point scale ranging from *complete satisfaction* to *complete dissatisfaction.*

These results again indicate patterns of sex differences. For men, the correlation between scores on the Identity Scale and reported degree of total satisfaction is

significant. This relation appears to be accounted for by the significant relations between identity and two of the sources of satisfaction measured by the subscales, namely, satisfaction with occupation and standard of living. There is also an indication of a mild relation between identity and satisfaction with family.

The only significant correlation found between identity and satisfaction for women is that between the Identity Scale and satisfaction with standard of living. There is an indication of a mild relation between identity and satisfaction with friendships. The relation between identity and total satisfaction approaches significance.

In brief, for men, identity as observed in early adulthood is correlated with satisfaction with occupation and possibly with satisfaction with family life as reported at midlife. These correlations are not found for women. The relation between identity and total satisfaction is clearer for men than for women. Identity correlates most strongly with total satisfaction and with standard of living for both men and women.

Respondents were also asked to report on how happy they remember themselves being since 1963. The questionnaire contained a 6-point Likert-type rating scale ranging from *very happy* to *very unhappy*. Respondents were asked to rate themselves for each 2-year period from 1963/1964 to 1979/1980. A total happiness score was computed by averaging responses across all years.

Once again, clear-cut sex differences emerge. Although identity is positively related to total happiness for both men and women, different patterns are obtained for the 2-year retrospective happiness ratings making up the total happiness variable. The correlation for men between identity and happiness was not significant for the periods between 1963/1964 and 1971/1972. Beginning in 1973/1974, identity appears to be related to happiness, and this relation gets stronger over time through 1979/1980. However, the pattern of correlations for women seems to be random.

Discussion

Identity and Intimacy

The relation between identity and successful establishment of stable, intimate interpersonal relationships (as measured by marital status) is noteworthy both in terms of supporting part of the Eriksonian paradigm and in suggesting gender-related differences in how this relation shows itself. What is particularly impressive is that the Identity Scale, administered in 1963, was a good predictor of marital status (for men) and marital stability (for women) 18 years later.

It is clear that, overall, those individuals who had a strong sense of identity in 1963 were able to establish more enduring marital relationships. The finding that 10 of the 11 never married men had low identity in young adulthood certainly

supports the claim that for men, a solid sense of identity helps to attain intimacy through marriage. The women in our sample are just as likely to get married as not, regardless of identity achievement. But in terms of staying married, again a high level of identity bodes well, whereas low levels of identity seem to make for marital problems. These patterns suggest that the paths for achieving intimacy may be different for the sexes. The road to intimacy is paved with a solid sense of identity for both, but one that is different for each sex. The identity measure accounts for these sex differences. Intimacy, likewise, has different features that become salient for men and women. For men the attainment of intimacy centers around the decision whether or not to get married. It is at this point that identity achievement based on the traditional male roles of instrumentality, effectance, and competence becomes crucial. Women, on the other hand, may be bound by the social prescription of marriage, so that identity achievement has little to do with whether they get married. However, the attainment of intimacy for these women seems to hinge on the ongoing stability of the relationship. It is here that an identity based on anxiety management and a facility with more emotional, expressive tasks comes to fruition in the establishment of stable marriage.

The mild correlation between identity and later satisfaction with friendship that exists for women but not for men may indicate a further sex difference. Women may be finding a source of intimacy in friendships rather than in the marital relationship alone.

Identity and Well-Being

The relations between identity and later happiness are also different for each sex, suggesting developmental differences between men and women. The fact that a measure of identity is predictive of happiness ratings up to 18 years later (particularly for men) clearly supports the claim that a successful resolution of the crisis of identity is required for a personally satisfying adulthood.

The relations between identity and satisfaction are suggestive in a number of ways. As with total happiness, total life satisfaction is positively correlated with identity, especially for men. When satisfaction is assessed in different spheres, it can be seen that the story is somewhat different for men and women. Although one might expect women to base their sense of identity much more in the area of intimate relationships and family (Marcia and Friedman 1970; Matteson 1975), this expectation is not supported by the data. Identity for women does not relate more strongly to satisfaction with family than for men. There is, however, some relation between identity and satisfaction with friendships for women that is not obtained for men. The strongest relation for both sexes is between identity and satisfaction with standard of living, This is surprising in light of the lack of relation between identity and income. What this indicates is that people who achieve a strong sense of identity early in their lives go on to be satisfied with whatever standard of living they achieve in their 40 s, regardless of their actual income. The

strongest difference between men and women occurs in the correlation between identity and occupational satisfaction, which holds for men but not for women. Men who achieved a strong sense of identity in their early 20 s ended up much more satisfied with their work in their early 40 s. The work arena thus continues to be an important aspect of male development and may be the path by which men establish their identity early on; having done so, men can derive satisfaction from their occupation during middle age.

Generalizability of the Findings

The fact that a subsample of artists is used to address these issues may raise questions regarding the generalizability of the findings. However, it should be noted that artists tend to be viewed as recalcitrant individuals who are self-centered, irresponsible, and difficult to get along with. In fact, Getzels and Csikszentmihalyi (1976) described the respondents in this study (art students) as highly unconventional, socially aloof, radical, sensitive, imaginative, and naive in comparison with non-art students. If a sense of identity is valuable for these individuals who presumably have difficulty sustaining intimate relationships, it may prove all the more valuable for the population at large.

Conclusion

In summary, these results show a relation between ego identity and the achievement of intimacy, a relation that differs between men and women. Whereas men who lack a well-developed sense of identity in young adulthood are likely to remain single into midlife, the decision to marry for women is independent of their achievement of identity. Women without a well-developed sense of identity instead have problems maintaining stable, enduring marriages. The successful resolution of the crisis of identity is predictive of future well-being for men in a clear and dramatic manner. For women, identity is related to future happiness and satisfaction in ways that are varied and complex. The discovery of these two differing patterns for men and women highlights potentially important differences in development. These differences suggest that social as well as psychological factors contribute to the formation of gender-related differences in the relation between identity and patterns of intimacy.

The relevance of this study to the work by Gilligan (1982), which suggests the existence of a distinct and unique developmental path for women, is that it provides evidence for this unique path in actual behavior over time, “When women construct the adult domain, the world of relationships emerges and becomes the focus of attention and concern” (Gilligan 1982, p. 167). Remaining true to this self-conception, a woman almost inevitably gets married. The test of whether she

can endure in this situation is if she has integrated a caretaking ability into a strong sense of identity during her adolescence. For men, whose tendency is to "represent powerful activity as assertion and aggression" (Gilligan 1982, p. 167), the test comes much earlier. A strong identity, based on occupational and ideological commitment, is necessary before the maturing male can venture into the world of intimacy.

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Chapter 18
The Quality of Experience of Asian American Adolescents in Activities Related to Future Goals

Kiyoshi Asakaw and Mihaly Csikszentmihalyi

This study explored the reason for the high academic achievements of Asian Americans by comparing the quality of experience of Asian and Caucasian American adolescents. The Experience Sampling Method was used to record subjective experiences. Subjects were 34 Asian American and 392 Caucasian American adolescents in the 6th, 8th, 10th, and 12th grades. When engaged in "work-like" activities and activities important for their future goals, Asian American students reported more positive experiences relative to Caucasian American adolescents. The examination of parental practices concerning children's academic activities indicated that Asian American parents structured their children's lives to facilitate academic success, and at the same time, they provided their children with

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freedom (or support their children's autonomy) in actual academic activities. The internalization of cultural values was suggested as a possible factor for promoting the educational success of Asian Americans.

Introduction

Coleman et al. (1966) suggested that the academic achievement of American students is primarily determined by family background and social context. Since then, many studies have been conducted on ethnic and social class differences of academic achievement and their possible causes. Especially in ethnic minority research, while great concern with the low academic performance of some minority groups has dominated the field, the academic success of Asian American students has also captured a great deal of attention from educators and researchers. One question raised is why Asian Americans perform so well academically even though they have experienced similar prejudice and discrimination encountered by other minority groups (Sue 1981).

To answer this question, many studies have been conducted up to date. Although some emphasize genetic factors (Lynn 1977, 1982; Lynn and Dziobon 1980) and selective immigration (Hirschman and Wong 1986), a familiar and most widely accepted explanation for the high academic performance of Asian American students involves "cultural advantages" which assume that Asian cultural values and practices promote academic excellence (Sue and Okazaki 1990). In particular, Asian family values and practices such as the importance of hard work, respect for education, and high expectations for achievement, have been identified by investigators as promoting high educational attainments (Kitano 1984; Sue and Okazaki 1990; Vernon 1982). Moreover, family socialization has been suggested as a major factor for transmitting such values, thus, for Asian American students' academic success (Mordkowitz and Ginsburg 1987; Schneider et al. 1992; Schneider and Lee 1990). For example, using structured interviews with Harvard undergraduates and secondary school summer students of Asian heritage, Mordkowitz and Ginsburg (1987) report that emphasis on academic study as the principal obligation of the child, high parental expectations for achievement, parental control of after-school time, and prioritization of education in the family are pervasive themes. By using in-depth interviews with Japanese American parents and their children, Schneider et al. (1992) also suggest the indirect value socialization process in the family as a key to Japanese Americans' educational success. The researchers report, "Japanese-American parents do not explicitly require, monitor, or supervise homework assignments. Similarly, they do not directly place demands on their children to get good grades. Rather, these expectations and values are transmitted indirectly and symbolically" (Schneider et al. 1992, p. 347).

With regard to family socialization, a series of arguments on parenting styles of Asian Americans is controversial, but interesting. Using large and diverse ethnic groups, Dornbusch et al. (1987) investigated the relationship between Baumrind's parenting styles (Baumrind 1971, 1973; Baumrind and Black 1967) and academic achievement. Across ethnic groups, the authoritarian style (i.e., emphasizing unquestionable obedience to parents) and the permissive style (i.e., reflecting substantial self-control by the child with minimal parental involvement) were negatively related to academic grades, whereas the authoritative style (i.e., reflecting an expectation for mature behavior from the child, clear setting of standards by the parents, and open two-way communications between them) was positively related. Interestingly, however, Asian American students had the highest grades (GPA) among all groups, including African Americans, Caucasians, Hispanics, and others, despite the fact that they came from families characterized as *more* authoritarian and permissive and *less* authoritative, Thus, although Baumrind's parenting styles explain achievement levels within ethnic groups, they fail to provide an account for the between-group differences.

In a response to this incongruent result among ethnic groups, Steinberg et al. (1992) suggest, in a follow-up study to Dornbusch et al. (1987), that parenting practices are influential for school performance among white and Hispanic adolescents, while peer support for academic achievement is a more powerful predictor of the academic achievement of Asian Americans. Their argument is that Asians' peer support offsets the negative effects of the authoritarian parenting style dominant in Asian cultures. However, Chao (1994) challenges Steinberg's argument by pointing out that the concepts of Baumrind's parenting styles are not adequate to interpret the difference in academic performance between Asians and Caucasians, "because Baumrind's conceptualizations are specific only to European-American culture" (p. 1113). She argues that although the concept of "authoritarian" somewhat describes the optimal Chinese parenting style, it does not capture the important features of "caring for" and "loving" that underlie the Chinese parenting practice. Thus, although it is not clear yet what the optimal parenting style is for Asian Americans, this series of arguments suggests that there may be different factors and mechanisms in the communication between parents and children from different cultures in promoting high academic performance.

Another theoretical development in the search of explanations for Asian Americans' high academic achievement has been driven by an attempt to bring sociological and historical factors into the picture (Alva 1993; Sue and Kitano 1973; Sue and Okazaki 1990; Suzuki 1977). Sue and Okazaki (1990), for example, argue that the academic success of Asian Americans is "a product of cultural values (i.e., ethnicity) and status in society (minority group standing)" (p. 917), by suggesting that education is a means to promote upward mobility, especially for Asian Americans in this society. Their concept of *relative functionalism* takes into account a long history of discrimination by labor unions in the United States as a primary factor for Asian Americans to pursue education. According to Sue and Okazaki, Asians' perceived limitations in mobility in noneducational types of endeavors "increase the relative value or function of education as a means of

achieving success" (p. 913). Studies by Schneider and her colleagues (Schneider et al. 1992; Schneider and Lee 1990) also report the determination of Asian American families to overcome occupational discrimination by investing in education. Thus, it appears that Asian Americans who perceive difficulties in upward mobility not only hold their cultural values, but increase the relative importance of such values and motivate themselves to overcome occupational discrimination and achieve success in the society.

The current study will take a different approach by examining the *phenomenology of adolescents' everyday life experience.* As we have seen, most previous research has focused on the relationships between cultural values or practices and academic achievements or on historical and social factors as a reason for academic success. However, there has been few systematic studies of how Asian American adolescents feel when they are engaged in activities, which are highly valued in their cultures, and which might bring them to success in this society. The authors believe the examination of the quality of experience in their ongoing activities in daily lives might provide a new insight for understanding academic success. For this purpose, the Experience Sampling Method (ESM) was used in this study. This method allows repeated measurement of the subject's everyday activities, thoughts, and accompanying psychological states in natural settings (Csikszentmihalyi and Larson 1987; Csikszentmihalyi et al. 1977; Larson and Csikszentmihalyi 1983).

This approach is further supported by Dieter Baacke's concept of "Lifeworld" (Baacke 1979, 1983), which was introduced in a book about socialization processes of Dutch youth by Van der Linden (1991). The concept, developed from socialization theory, social ecology, and internationalism, and based on Edmund Husserl's phenomenology, suggests that people create their own life worlds by their subjective interpretation of the present social reality. "Within the boundaries of one's own life world a person practices his or her 'everyday theory' about the surrounding world, acts accordingly, and reacts to whatever he or she encounters" (Van der Linden 1991, p. 17). Subjective experience is the central focus of Baacke's life world approach to his study of adolescence.

Using the phenomenological approach, this study explored a more fundamental explanation for the high academic achievement of Asian American adolescents. That is, if it is true that Asian values, such as hard work, respect for education, and high expectations for achievement, are the significant factors for high attainments as has been claimed by previous research, it may be argued that Asian Americans' high academic achievements are the products of internalization of cultural values. In their theory of internalization, Deci and Ryan (1985) argue that people with an advanced level of internalized regulations have a more positive experience. Although activities motivated by internalized values are not based on intrinsic motivation, they are "self-determined" and thus they are intrinsically rewarding for the actors (Deci and Ryan 1985). In addition, theories of internalization (Deci and Ryan 1985; Grusec and Goodnow 1994) have suggested that for internalization to occur, the socializing agents must provide children with clear structure or information to follow (i.e. provision of structure), as well as support for autonomy (i.e. provision of autonomy support).

On the basis of these theoretical backgrounds, we examined two major questions in the current study. First, we examined what kind of subjective experiences Asian American adolescents had when engaged in activities that might lead them to future success. In order to do so, two kinds of situations were selected for the Experience Sampling Method (ESM) analyses. The first were situations where adolescents were engaged in "work-like" activities and the others were situations where adolescents were engaged in activities highly important to their future goals, Then, we compared the quality of experience of Asian American adolescents with that of Caucasian American adolescents when they were in these two situations. Here we predicted that if Asian American adolescents had internalized cultural values, such as hard work and high expectations for achievements, they might have more positive experience in "work-like" activities and activities which were related to their future goals. Second, we examined how parental practices would differ between these two culturally different groups in terms of academic concerns, We predicted that in order to promote their children's internalization of cultural values relevant to education and future success, Asian American parents might provide their children with more clear structure and guidance for academic success, as well as more autonomy in actual academic activities, as compared to Caucasian American parents.

Methods

Sample

A total of 1,109 students in the 6th, 8th, 10th, and 12th grades participated in a five-year longitudinal study of career development being conducted by The University of Chicago and the National Opinion Research Center's Ogburn-Stouffer Center (Bidwell et al. 1992). The students were selected from 33 public schools around the nation chosen to reflect the full range of socioeconomic environments, from upperclass suburbs to below poverty-line urban neighborhoods. Students were, in turn, randomly chosen with the aim of obtaining representative samples of their respective schools in terms of gender, race and ethnicity, and scholastic ability level, and assigned to completing the full-scale instrument battery, which included the ESM, NELS questionnaire (a modified version of the National Education Longitudinal Study of 1988: NELS: 88), a Friend Sociometric Form (FRIENDS), and the Career Orientation Scale (COS), which measures children's knowledge of work and their career aspirations. This group of students is called the "focal students."

For the purpose of this study, 34 Asian students *whose first language is not English (an Asian Language)* and 392 Caucasian students *whose first language is English* were further selected out of the focal sample with the aim of obtaining two

Table 18.1 Characteristics of Asian and Caucasian Groups

Variable	Asian ($n = 34$)	Caucasian ($n = 392$)	Chi-Square	p Value df
Gender (%)				
Male	50	45	0.33	ns (57)
Female	50	55	–	$df = 1$
Age (%)				
6th	12	26	11.50	$p < 0.01$
8th	21	27	–	$df = 3$
10th	26	29	–	
12th	41	18	–	–
Family composition (%)				
Both mother and father[a]	71	71	0.005	ns (0.94)
Other	29	29	–	$df = 1$
Social class of community (%)[b]				
Lower class	2.9	1.3	29.49	$p < 0.001$
Working class	2.9	23.5	–	$df = 4$
Middle class	20.6	30.9	–	
Upper middle class	67.6	25.8	–	–
Upper class	5.9	18.6	–	–

[a] Families that consist of mothers and fathers who are not divorced, separated, or remarried
[b] Social class of community is the census characteristics of the neighborhood in which adolescents live. This information is obtained from the 1990 census

culturally different groups of adolescents. Thus, the final focal sample of this study is a total of 426 Asian and Caucasian American adolescents. Although 28 out of the 34 Asian students mostly speak English now in their daily lives and no instrument to measure their levels of acculturation to American culture and the length of being in the USA was administered, considering their first languages, those Asian students are presumably First and Second generations, In addition, the authors believe their first socialization phase in an Asian language sufficiently exposed them to their native culture to the extent that they may still preserve their cultural identities. Among those 34 Asian American adolescents, Pacific Islanders (Samoan, Guaminian, etc.), West Asians (Iranian, Afghan, Turkish, etc.), and Middle Easterners (Iraqi, Israeli, Lebanese, etc.) were not included, The Asian students in this sample include 14 Chinese, 3 Filipino, 2 Japanese, 5 Korean, 7 Southeast Asian (Vietnamese, Laotian, Cambodian/Kampuchean, Thai, etc.), 2 South Asian (Asian Indian, Pakistani, Sri Lanka, etc.), and I student whose parents are Chinese and Vietnamese.

The characteristics of the Asian and Caucasian groups are shown in Table 18.1, In terms of gender and family composition, these two groups are similarly represented. However, in this sample Asian American adolescents are overrepresented in the 12th grade and underrepresented in the 6th grade, as compared to Caucasian American adolescents. In terms of the Social Class of Community

(SCC), which is the census characteristics of the neighborhood in which the adolescents live (Bureau of the Census 1993), Asian American adolescents are more likely to come from upper middle class communities, and less likely to come from working class and upper class communities, as compared to their Caucasian American counterparts. Hence, in all statistical analyses age (grade) and SCC will be controlled for when the two groups arc compared by using analysis of covariance (ANCOVA) with regression approach.

In addition to the focal students, another group of students was selected for the five-year longitudinal study of career development. Labeled as "cohort" students, they were selected through the same procedure as the focal students described above, and were assigned to filling out NELS, FRIENDS, and COS questionnaires, but not the ESM. The cohort sample included 3,604 students from different ethnic backgrounds, including African, Asian, Caucasian, Hispanic, and Native Americans. From these students, we selected 142 Asian Americans whose first language is not English and 1,451 Caucasian Americans whose first language is English for the final cohort sample of this study.

The completion rate for the ESM was 71 % among the entire focal students of the five-year longitudinal study of career development. With respect to the other instruments, the entire focal students tended to have slightly lower rates than the entire cohort sample. However, the lowest completion rate was 77 % among the entire focal students for FRIENDS. The overall completion rates among both samples for the three instruments, COS, NELS, and FRIENDS, was 87 %. The final focal and cohort samples of Asian and Caucasian American students in this study were those who completed all instruments they were assigned.

Procedure

The subjects met in small groups with a member of the research team for She Experience Sampling Method orientation. They were given preprogrammed wristwatches that would randomly signal over a week and instructed to fill out an ESF (Experience Sampling Form) each time the watch signaled. At the meeting, students were provided with the ESF booklets and asked to fill out a sample ESF to make sure that the procedures were understood. They were also given three other questionnaires, NELS, COS, and FRIENDS, and asked to complete these questionnaires during the upcoming week. At the end of the week, a debriefing meeting was held, and the wristwatches, ESFs, and all other questionnaires were returned. In addition, students were interviewed soon after the debriefing session. Each student met one-on-one with a team member for an in-depth interview that lasted approximately 40 min and that focused on family, friends, and future goals.

Measures

The main research tool of this study was the ESM. Students carried a preprogrammed signaling wristwatch, which would signal them 8 times daily for a weekly total of 56 signals, and filled out the ESFs whenever they were signaled. The wristwatches were programmed to beep students at a random time during every two hour block from 7:30 AM to 10:30 PM daily, with the restriction that no two signals would be less than 30 min apart.

In order to obtain a consistent and reliable ESM data base, incomplete responses and those ESFs that were filled out more than 15 min after the signal were discarded and only students who completed *at least* 15 ESFs were included in the data base. For the present study, 426 students completed a total of 14,274 ESFs (1113 for the Asian and 13,161 for the Caucasian sample), which amounts to a response rate of about 60 % (8 signals a day for 7 days × 426 students): 58 % for Asians and 60 % for Caucasians, Missing responses were due to forgetting the watch or ESF at home, watch malfunction, or inability of the student to fill out the form in certain situations.

Quality of Experience

The quality of experience was examined with five experiential items on the ESF—happiness, enjoyment, feeling good about yourself, activeness, and self-consciousness—which represent some of the most important dimensions of the quality of experience (Csikszentmihalyi and Larson 1984).

Two experiential variables—happiness and activeness—were measured by 7-point semantic differential items: happy–sad and active–passive. The other variables—enjoyment ("Did you enjoy what you were doing?"), feeling good about yourself ("Did you feel good about yourself?"), unself-consciousness ("How self-conscious were you?" recoded so that a high score implies not at all self-conscious)—were measured by a 10-point scale ranging from *not at all* to *very much.*

For the following analyses, raw scores were standardized around individual means to eliminate individual response biases, and the resulting z scores for each experiential variable were aggregated within each person and used to measure the quality of experience in various activities and situations.

Students' Perceptions of Activities

In order to define "work-like" activities and activities highly important to future goals, two questions on the ESF were used. Students' perceptions of work-, play-, both-, and neither-like activities were measured by the question inquiring if the main activity they were doing seemed "more like work," "more like play," "like both," or "like neither." Perceived importance of activities to future goals was

measured by the question, "How important was it (the main activity) in relation to your future goals?" Responses were given on a 10-point rating scale ranging from *not at all* to *very much.* These responses were also standardized by an individual mean score, and then classified in terms of whether importance to future goals was high or low *(above* or *below the mean).* Thus, the situations of "high future importance" included responses where students' perceived importance of activities for their future goats was higher than their weekly average (above "zero" on the standardized score) and the situations of "low future importance" included responses where students' perceived importance of activities for their future goals was lower than their weekly average (below "zero" on the standardized score).

Parental Practices Concerning Academic Matter

In order to measure parental practices concerning academic matter, three questions were selected from NELS.

1. *Who makes the decision* was measured by the question, "In your family, who makes most of the decisions on each of the following topics?" Two items relevant to this analysis were selected out of the 7 original items. These are questions about who makes the *decisions on "what classes student takes in school" and on "whether student should go to college." Answers were given on 5-point scales (1 = I decide by myself, 2 = I decide after discussing it with my parents, 3 = we decide together after discussing, 4 = my parents decide after discussing it with me, 5 = my parents decide themselves).*
2. *Parental involvement in academic activities* was measured by the question, "How often do your parents do the following?" This question is composed of 6 items that ask how often, for instance, parents check on whether the student has done his/her homework or how often parents help the student with his/her homework. Answers were given on 4-point scales (0 = *never,* 3 = *often).*
3. *Frequency of discussion with parents* was measured by the question, "Since the beginning of the school year, how often have you discussed the following with either or both of your parents or guardians?" Six items relevant to this analysis were selected out of 7 original items. The selected items ask how often students have discussed, for instance, selecting courses or programs at school, things studied in class, or their grades. Answers were given on 3-point scales (1 = *not at all,* 2 = *once or twice,* 3 = *three or more times).*

Results

The Quality of Experience

Before examining the quality of experience, what activities adolescents were engaged in when they perceived the activities at hand as "work-like," "play-like," "both-like," and "neither-like" was examined. Asian American and Caucasian American adolescents were engaged in the same types of activities in each situation. Both groups had similar perceptions of work-like, play-like, both-like, and neither-like activities. Moreover, when they responded that the main activities they were engaged in were more like work, more than 60 % of the time both groups were studying, including anything related to class room activities, such as listening to the teacher and taking notes, homework, and independent studies on school subjects (Asian 63.9 % and Caucasian 66.0 %), followed by working, such as doing paid work, volunteer work, and housework (chores and errands), for both groups (Asian 10.6 % and Caucasian 11.1 %).

We also examined what activities adolescents were engaged in when they perceived the importance of the activities for their future goals as high and low. Again, both groups mentioned quite similar types of activities in each situation. Moreover, when they responded that the main activities they were engaged in were important to their future goals (i.e., future importance is high), 43 % of the time both Asian American and Caucasian American adolescents were studying (Asian 42.8 % and Caucasian 43.0 %), and over 15 % of the time they were engaged in maintenance activities, such as eating, grooming, or personal care (Asian 16.2 % and Caucasian 15.3 %).

Ethnic Differences in the Quality of Experience in Work-Like Activities

A series of ANCOVAs controlling for the effects of age and SCC was performed to examine whether the quality of experience of Asian American adolescents differed from that of Caucasian American adolescents in work-like activities. Figure 18.1 shows the two groups' average z scores on the five dimensions of experience, The value "zero" for the average z score for each experiential variable indicates the weekly average of the dimension of experience. Thus, for example, if the variable "happy" is positive when doing work-like activities, it means that the students feel happier when engaged in work-like activities than they feel on average during the week, The results show that although both groups seemed to have a somewhat negative experience when engaged in work-like activities, Asian American adolescents were significantly happier, enjoyed more, and felt better about themselves in the situation; happiness, $F(1,411) = 9.24$, $p < 0.01$; enjoyment, $F(1,419) = 16.15$, $p < 0.001$; feeling good about themselves, $F(1,413) = 8.31$, $p < 0.01$. Activeness and unself-consciousness for these two groups were not significantly different. But Asian American adolescents were

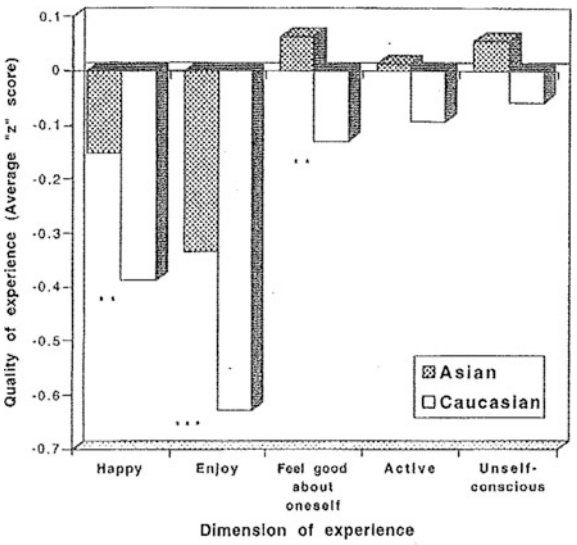

Fig. 18.1 Quality of experience while doing work-like activities

more active and less self-conscious than their weekly average, while Caucasian American adolescents were less active and more self-conscious than their weekly average when they were engaged in work-like activities.

ANCOVAs were also performed to examine whether the quality of experience differed in activities perceived as play-like, both-like, and neither-like, still controlling for the effects of age and SCC. There was no significant difference between the two groups in the quality of experience when they were engaged in play-like, both-like, or neither-like activities, except for only two marginal differences in the level of enjoyment. When engaged in play-like and neither-like activities, Asian American adolescents reported lower level of enjoyment than Caucasian American adolescents did; play-like activities, $F(1,413) = 3.15$, $p < 0.10$ (marginal significance); neither-like activities, $F(1,406) = 3.56$, $p < 0.10$ (marginal significance). Thus, Asian American adolescents have much more positive experiences than Caucasian American adolescents only in work-like activities.

However, interindividual z scores are not independent of each other. That is, if only two types of activities are being considered, for example, and if a subgroup of adolescents has a mean score that is deviating in one direction from zero in one activity, the mean score for the subgroup in the other type of activity must also be deviating from zero in the opposite direction. However, we had four categories of activities (work-, play-, both-, and neither-like activities) and only about 30 % of the time both Asian American and Caucasian American adolescents perceived the activities at hand as work-like, and the other 70 % of the time they perceived the main activities they were engaged in as either play-like, both-like, or neither-like activities. Thus, lack of independence in z scores cannot explain the difference in

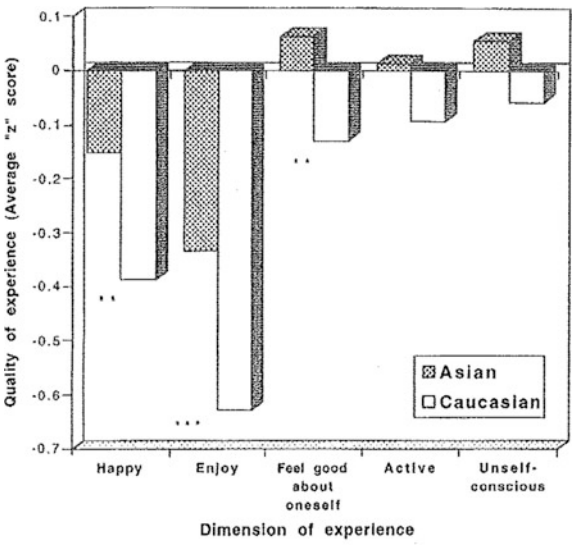

Fig. 18.2 Quality of experience related to importance to future goals

the experience of work between Asian American and Caucasian American adolescents.

Comparison of the Quality of Experience in Situations Where the Importance to Their Future Goals is High and Low

In order to examine the quality of experience of Asian American and Caucasian American adolescents in situations where the perceived importance to their future goals was high (higher than the weekly average) and low (lower than the weekly average), an ANCOVA with future importance (high vs. low) and ethnicity (Asian vs. Caucasian) as factors was conducted on each experiential variable while controlling for the effects of age and SCC. Figure 18.2 shows the two groups' average z scores on the five dimensions of experience in the two situations. The results indicate that when perceived future importance was low, Asian American adolescents were less happy, less enjoying, less feeling good about themselves, less active, and more self-conscious than their weekly average, while when their perception of future importance was high, Asian American adolescents were happier, more enjoying, feeling better about themselves, more active, and less self-conscious than their weekly average. Moreover, the level of Asian American adolescents' experience changed dramatically from negative to positive as their perception of future importance changed from low to high.

The Caucasian American adolescents' quality of experience in the same situations is quite different. When their perception of future importance was low, they were happier, more enjoying, and less self-conscious, but less feeling good about

Table 18.2 Decision on student's lives (who makes most of the decision on the following topics?)[a]

Grade	6th	8th	10th	12th	Total	ANCOVA
I should go to college						
Asian	2.75	2.29	3.00	2.59	2.66	A ($p < 0.10$)
Caucasian	2.43	2.25	2.12	1.89	2.19	
What classes I will take						
Asian	1.25	1.86	1.56	1.23	1.45	A ($p < 0.01$)
Caucasian	2.43	1.88	2.07	1.70	2.04	

[a] Reported p levels are the results of 2 × 4 ANCOVAs, controlling for the effect of social class of community, with Ethnicity (A) and Grade (B) as factors. Scores are based on a 5-point scale: 1 = *I decided by myself,* 2 = *I decide after discussing it with my parents,* 3 = *we decide together after discussing*, 4 = *my parents decide after discussing it with me,* 5 = *mv parents decide themselves*

themselves and less active than their weekly average. When their perception of future importance was high, they were feeling better about themselves and more active, but they were less happy, less enjoying, and more self-conscious than their weekly average. While the levels of happiness, enjoyment, and unself-consciousness of Asian American adolescents went up as their perception of future importance changed from low to high, Caucasian American adolescents' levels of those dimensions of experience went down, and this pattern caused interaction effects between the two factors of future importance (high vs. low) and ethnicity (Asian vs. Caucasian) on happiness; $F(1,830) = 9.02$, $p < 0.01$; enjoyment, $F(1,840) = 8.02$, $p < 0.01$, and on unself-consciousness, $F(1,736) = 4.81$, $p < 0.05$. The levels of feeling good about themselves and activeness of both groups went up as their perception of future importance changed from low to high. However, Asian Americans' dramatic change of experience also caused interaction effects on these dimensions of experience; feeling good about themselves, $F(1,828) = 4.07$, $p < 0.05$; and activeness, $F(1,827) = 2{,}77$, $p < 0.10$ (marginal significance).

In summary, when they were engaged in work-like activities and activities highly important to future goals, Asian American adolescents had more positive experience than Caucasian American adolescents.

Parental Practices Concerning Children's Academic Activities

Table 18.2 shows who makes decisions on two topics related to academic matters in Asian American and Caucasian American families. An ANCOVA controlling for the effect of SCC with ethnicity and grade as factors was performed for each item. Scores are based on a 5-point rating scale, and a higher score indicates that

Table 18.3 Parental control (how often parents do the following)[a]

Grade	6th	8th	10th	12th	Total	ANCOVA
Check on whether you have done homework Asian	1.50	1.71	1.67	0.29	1.09	A ($p < 0.10$)
Caucasian	2.29	1.85	1.46	1.03	1.70	B ($p < 0.001$)
Help you with homework Asian	0.75	1.71	0.67	0.29	0.74	A ($p < 0.001$)
Caucasian	2.11	1.63	1.44	0.93	1.57	B ($p < 0.001$)
Limit TV/video game time Asian	2.25	1.57	1.22	0.79	1.24	A ($p < 0.10$)
Caucasian	1.52	1.19	1.01	0.45	1.09	B ($p < 0.001$)
Assign household chores Asian	1.75	2.14	1.78	1.71	1.82	–
Caucasian	2.20	2.23	2.37	2.21	2.26	A ($p < 0.05$)
Give privileges for good grades Asian	1.75	1.43	1.56	0.93	1.29	
Caucasian	1.69	1.67	1.36	1.21	1.50	ns
Limit privileges for poor grades Asian	0.25	0.86	1.67	0.43	0.82	–
Caucasian	0.81	1.20	1.16	0.69	0.99	B ($P < 0.01$)

[a] Reported p levels are the results of 2 × 4 ANCOVAs, controlling for the effect of social class of community, with Ethnicity (A) and Grade (B) as factors. Scores are based on a 4-point scale: 0 = *Never,* 1 = *Rarely,* 2 = *Sometimes,* 3 = *Often*

parents are more likely to make the decision on that topic. According to the results, Asian American parents are more likely to decide whether their children should go to college, as compared to Caucasian American parents; $F(1,400) = 3.31$, $p < 0.10$ (marginal significance). However, in terms of what classes their children will take, Asian American parents seem to allow their children more freedom in deciding, as compared to Caucasian American parents; $F(1,403) = 9.30$, $p < 0.01$.

The next examination of parental practices is concerned with how parents are involved in their children's daily lives (Table 18.3). Analyses of co-variance controlling for the effect of SCC with ethnicity and grade as factors were conducted on several kinds of parental involvement in children's lives. The results indicate that Asian American parents check on whether their children have done their homework less often and help their children with their homework less often than Caucasian American parents; checking homework, $F(1,414) = 2.79$, $p < 0.10$ (marginal significance); helping with homework, $F(1,414) = 13.01$, $p < 0.001$. However, Asian American parents limit time for TV/video games more often, but they assign household chores less often than Caucasian parents; limiting time for TV/video games, $F(1,414) = 3.13$, $p < 0.10$ (marginal significance); assignment of household chores, $F(1,413) = 4.51$, $p < 0.05$. Main effects for grade were also found for checking homework; $F(3,414) = 9.86$, $p < 0.001$; helping with homework, $F(3,414) = 8.12$, $p < 0.001$; and for limiting time for TV/video games, $F(3,414) = 6.15$, $p < 0.001$. There was no difference between the two cultural groups in the parental practices of giving privileges for good grades and limiting privileges for poor grades. In sum, it seems that Asian American parents organize their children's lives for their academic success by limiting time for TV/video games and assigning household chores less often, but they do not control actual academic activities too much; they do not check

Table 18.4 Discussion with parents (how often students have discussed the following with parents)[a]

Grade	6th	8th	10th	12th	Total	ANCOVA
Selecting school courses						
Asian	1.75	2.29	2.44	1.71	2.03	A ($p < 0.10$)
Caucasian	2,01	2.36	2.53	2.17	2,28	B ($p < 0.001$)
Things studied in class						
Asian	2.75	2.14	2.44	2.15	2.30	
Caucasian	2.70	2.61	2.63	2.64	2.65	A ($p < 0.05$)
School activities interesting to you						
Asian	2,50	2.57	2,44	2.00	2.29	
Caucasian	2.54	2.54	2.55	2.57	2.55	A ($p < 0.10$)
Grades						
Asian			2.56	2.21	2,35	A ($p < 0.001$)
Caucasian			2.81	2.72	2.78	B ($p < 0.10$)
ACT/SAT plans and *Preparation*						
Asian			2.56	2.07	2.26	
Caucasian			1.90	1.84	1.88	A ($p < 0.05$)
Going to college						
Asian			2.78	2.71	2.74	
Caucasian			2.63	2.91	2.74	ns

[a] Reported p levels are the results of ANCOVAs, controlling for the effect of social class of community, with Ethnicity (A) and Grade (IS) as factors. Scores are based on a 3-point scale, 1 = *Not at all,* 2 = *Once or twice,* 3 = *Three or more times*

homework and do not help with homework often, as compared to Caucasian American parents.

The last examination of parental practices concerning children's academic activities is based on how often adolescents say that they have discussed things related to academic matters with their parents (Table 18.4). A series of ANCOVAs controlling for the effect of SCC with ethnicity and grade as factors was performed for various topics students discuss with their parents. The last three items were answered only by 10th and 12th graders.

Asian American adolescents seem to discuss selecting school courses less often, discuss things studied in class less often, discuss school activities less often, and discuss grades less often with their parents, as compared to Caucasian American adolescents; selecting courses, $F(1,412) = 3.22$, $p < 0.10$ (marginal significance); things studied in class, $F(1,414) = 6.35$, $p < 0.05$; school activities, $F(1,414) = 2.82$, $p < ,10$ (marginal significance); grades, $F(1,198) = 11.73$, $p < 0.001$. However, Asian American students discuss ACT/SAT plans and preparation with their parents more often than Caucasian American students; $F(1,198) = 5.17$, $p < 0.05$. Thus, it seems that Asian American parents are more likely to provide their children with guidance for academic success, such as discussing ACT/SAT plans and preparation, but they do not get overly involved in

actual academic activities. There were also grade effects on selecting school courses; $F(3,412) = 5.36$, $p < 0.001$, and on grades; $F(1,198) = 3.47$, $p < 0.10$ (marginal significance).

In addition, we included the cohort sample in the analyses and compared a total of 176 Asian Americans (34 focal and 142 cohort students) and a total of 1843 Caucasian Americans (392 focal and 1,451 cohort students) on the same parental practice measures by using ANCOVAs with regression approach, controlling for the effects of grade, SCC, and family composition. Although the difference between these two groups on how often parents check on whether their children did their homework did not come out significant, otherwise the results were strongly consistent with those of analyses with the focal sample. Asian American parents were more likely to decide whether their children should go to college, $F(1,1953) = 19.19$, $p < 0.001$, to discuss ACT/SAT plans and preparation with their children, $F(1,1281) = 6.86$, $p < 0.01$, and to limit time for TV/video games, $F(1,2003) = 15.69$, $p < 0.001$, but less likely to assign household chores, $F(1,1998) = 5.85$, $p < 0.05$, compared to Caucasian American parents. Asian American parents were less likely to decide what classes their children should take, $F(1,1984) = 6.35$, $p < 0.05$, helped their children with homework less often, $F(1,2002) = 23.59$, $p < 0.001$, discuss things studied in class less often, $F(1,2004) = 31.23$, $p < 0.001$, discuss school activities less often, $F(1,2002) = 24.05$, $p < 0.001$, and discuss even grades less often $F(1,1293) = 45.42$, $p < 0.001$, as compared to Caucasian American parents.

Discussion

Before reviewing the details of the findings, it is necessary to consider in what ways the limitations of this study must induce caution in the interpretation of its results. The main concern is that we are generalizing about Asian American adolescents, about Asian values, and about Asian family socialization practices from a very small sample of Asian American teenagers. Even though we controlled for the effect of social class of community in all statistical analyses, it is possible that Asian American families are representative of the higher strata of Asian society. Thus their values may represent the ideal of Asian attitudes toward work ethics and future orientation, rather than the average. Consequently, the differences found between Asian Americans and Caucasian Americans may in part be due to a comparison between a self-selected elite who was enterprising enough to emigrate to a new culture, and an average cross-section of the American population.

Nevertheless, the findings suggest that there are meaningful differences in values, experiences, and family socialization process between the two cultural groups. First of all, Asian American adolescents reported relatively positive experiences when they were engaged in activities highly valued in their cultures. When engaged in activities perceived to be more like work, they were significantly

happier, reported enjoying themselves more, and felt better about themselves than their Caucasian American counterparts. However, there was no significant difference between the two groups in the quality of experience when engaged in play-like, both-like, or neither-like activities, except for a few marginal differences in enjoyment in play-like and neither-like activities. Further, in situations where the importance for future goals was high, Asian American adolescents had a more positive experience than Caucasian American adolescents. When perceived future importance was high, they were happier, enjoying more, feeling better about themselves, more active, and less self-conscious than their weekly average, while Caucasian American adolescents were less happy, less enjoying, and more self-conscious than their weekly average in the same situations. Moreover, the level of Asian Americans' experience dramatically improved as their perception of future importance changed from tow to high. According to these analyses of subjective experiences when involved in work-like activities and activities important to future goals, it seems that Asian American adolescents value hard work and high achievement more strongly. In other words, Asian American adolescents seem to have internalized such cultural values. As mentioned before, in their theory of internalization, Deci and Ryan (1985) argue that people with an advanced level of internalized regulations that are operative by personal importance and values coherent to the sense of the self engage in such activities more willingly and have a more positive experience. Thus, Deci and Ryan's description of internalized motives appears to apply to the experience of our Asian American adolescents in situations that are relevant to their future. Cultural values of hard work and high expectations of achievements that are emphasized through parental socialization (Mordkowitz and Ginsburg 1987; Sue and Okazaki 1990; Schneider et al. 1992; Schneider and Lee 1990; Stevenson and Stigler 1992; Vernon 1982) seem to have been internalized by Asian American adolescents quite well.

When we turned to family socialization and examined whether there were differences in parental practices concerning children's academic activities, very interesting patterns emerged. Asian American parents seem to structure their children's lives for academic success more than Caucasian American parents. Asian American parents were more likely to decide whether their children should go to college, to discuss ACT/SAT plans and preparation with their children, and to limit time for TV/video games, but less likely to assign household chores. Thus, it seems that Asian American parents organize and structure their children's lives to facilitate academic success, and this result replicates the findings of previous research (Kao 1995; Mordkowitz and Ginsburg 1987; Stevenson and Stigler 1992).

When we look at the involvement in actual academic activities, we may get a quite different impression from the "authoritarian" image of Asian American parents. That is, Asian American parents were less likely to be involved in their children's actual academic activities. They were less likely to decide what classes their children should take, and to check less often on whether their children did their homework. They helped their children with homework less often, and discussed things studied in class, school activities, and even grades less often. A study by Kao (1995) that uses the NELS: 88 also reports the same pattern of parental

involvement for a national sample of Asian and Caucasian Americans (see also Sue and Okazaki 1990). Thus, our Asian American parents, as well as Asian American parents of the students in the NELS: 88 national sample, seem to provide their children with more freedom in actual academic activities.

Theories of internalization (Deci and Ryan 1985; Grusec and Goodnow 1994) have suggested that for internalization to occur, the socializing agents must provide children with support for autonomy, as well as clear structure or information to follow. Thus, practices of Asian American parents in this study seem to have such qualities to promote the process of internalization, Asian American parents structure their children's lives to facilitate academic success (provision of structure), and at the same time, they provide their children with freedom (or support their children's autonomy) in actual academic activities (autonomy support).

However, although these Asian Americans' parental practices seem to fit the theories of internalization, they may not be the most effective means for Caucasian Americans to promote internalization of their educational values. The concept of the "authoritative" parenting style, which has been shown to be the optimal form for Caucasian Americans, assumes democratic open two-way communications between parents and children. It seems that Caucasian American parents and children collaborate together to build the children's future. On the other hand, Asian American parenting practices are more like a combination of "authoritarian" and "permissive" styles. *Asian American parents structure their children's lives for academic success more or less one-sidedly. Then, they leave their children alone to achieve their goals by themselves*. These parenting practices of Asian Americans are well documented by Schneider et al. (1992) as "a tacit understanding—between the parents and the child about the value of education, putting forth one's great effort, and bringing the family honor through successful academic performance" (Schneider et al. 1992, p. 343). As an example of this "tacit understanding," the researchers introduce an interesting quotation from an interview with a Japanese mother. "I don't have to say anything about bad grades. My kids have high expectations of their own. If they don't do well, they're mad at themselves" (p. 344). Thus, the mother relies on her children's internalized norms of performance rather than directly controlling academic activities. She seems to *provide more psychological space for her children to work out the difficulties in academic activities by themselves.* However, we must note that it appears that this psychological space is provided to Asian American adolescents by their parents within rigidly and clearly structured lives for their academic success.

Although the current study showed interesting patterns of Asian Americans parental practices that may promote children's internalization of cultural values related to academic success, it is obvious that further research should be conducted on the relationship between family socialization practices and internalization of values and on its mechanism, both for Asian and Caucasian Americans. In any case, our research provide a new insight into why Asian American students perform well in schools. The examination of the quality of experience when engaged in "work-like" activities and activities highly important for the future goals seems to suggest that Asian American adolescents have internalized cultural values of

hard work and high expectations of achievement. Moreover, whether or not Asian Americans indeed increase the relative importance of values relevant to future success and motivate themselves to overcome occupational difficulties, as relative functionalism suggests, they are not reluctantly working or studying hard for their future goals. They have relatively positive experiences when engaged in activities related to their future (see also Asakawa (1995). Although we still cannot draw a decisive conclusion that internalization of cultural values is a reason for the high academic achievement of Asian Americans, it is clear that subjective experience is an important factor to foster children's favorable attitudes toward activities which are related to their future goals.

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Chapter 19
Adolescent Happiness and Family Interaction

Mihaly Csikszentmihalyi and Kevin Rathunde

Few family studies have investigated the subjective rewards that adolescents experience at home, which may build toward positive developmental outcomes. This despite the fact that extensive research into "optimal experiences" (interest, flow, intrinsic motivation, peak experiences) suggest they are among the most important influences on growth, such as the full utilization of potential, and the achievement of a sense of self-determination and creativity (Amabile 1983; Csikszentmihalyi and Csikszentmihalyi 1988; deCharms 1976; Deci and Ryan 1985; Dewey 1913; Groos 1898; Harter 1978; Maslow 1968; White 1959). Identifying which factors enhance momentary experience may stimulate new ideas on how to improve adolescent life, and therefore aid the structuring of enjoyable and effective developmental contexts. Toward this end, this chapter focuses on one dimension essential for healthy families—the experience of happiness.

Our assumption is that adolescents who report being happy in everyday activities of life—in schoolwork, housework, and other usually unpleasant routines—have benefited from family environments that facilitate such experience. To investigate happiness and family life the first questions addressed by this study are descriptive: What kinds of activities do adolescents engage in at home with their parents? Which activities are engaged without them? Which one makes adolescents happier?

These questions are answered using the Experience Sampling Method (Csikszentmihalyi and Larson 1987; Csikszentmihalyi et al. 1977)—a method

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designed to provide systematic access to subjective experience through daily self-reports of momentary thoughts and feelings in natural settings. The data were obtained from a sample of 165 talented high school students who wore electronic pagers for one week and filled out approximately 2,400 short questionnaires in response to signals received at home.

After describing the group as a whole, the study investigates the differing family types and parental behaviors that correlate with happiness. Previous research (Rathunde 1988, 1989b) found that teens who perceived their families as integrated and differentiated reported improved subjective experience and performance in a variety of productive settings, including work at school. This chapter focuses on teens' subjective feelings of happiness in a variety of activities at home, in an attempt to illuminate these positive family dynamics in more detail.

Complex Families and the Quality of Experience at Home

A growing theme in the study of families and adolescent development concerns the importance of finding a balance, between family integration, and individual differentiation (see Grotevant and Cooper 1983; Olson et al. 1979). Integration allows family members to maintain relations with others through a shared investment of attention in common goals (traditions, beliefs, values, etc.); differentiation allows an individual to construct a separate self through having the control to invest in personal goals (Csikszentmihalyi and Rochberg-Halton 1981; Damon 1983). When a system, whether biological, cognitive, familial, or societal, is both integrated and differentiated, it is commonly referred to as *complex*. When a system has low integration and differentiation its organization can be thought of as *simple*.[1]

Just as an infant's secure attachment allows the emergence of exploration and independence (Ainsworth et al. 1971; Matas et al. 1978), a teen-ager's sense of community in a complex family allows autonomous challenges to be embraced with a sense of confidence (the same dynamic, it could be argued, is true for all persons despite their age, see e.g., Maslow 1968). The paradoxical idea that is implicit in the notion of family complexity—a sense of "dependence" for a feeling of "independence"—also corresponds to the observations of some biologists concerning human development. For instance, they point out that due to the

[1] The terms *complex* and *simple* describe a family's internal organization. Complex should be distinguished from "complicated," which commonly implies a deleterious lack of organization; simple should not be taken to imply "simple-minded." In fact, the parents and children of families described as simple in this chapter do not differ in terms of education or intelligence from other family groups. The complexity of a family is directly related to the amount of attention, or psychic energy, that its members invest in each other as individuals (differentiation), and in common family goals (integration). Thus, a simple family organization is one that reduces opportunities for members to invest attention in shared activities or personal projects.

lengthy period in which parents must invest time and energy into taking care of their children (a condition of "neoteny" in biological parlance), human infants gain more opportunities to play in and explore their environments, resulting in greater behavioral flexibility and cognitive development (Fagan 1981). If one extends this reasoning to adolescent development, teens who maintain some reliance on parents can reap the benefits of extended periods of challenge seeking and exploration, which presumably are important for development and growth.[2]

Although the advantages of belonging to a family where attachment and autonomy are both valued is being described with increasing frequency (see also Irwin 1987), understanding why such a pattern seems to work so well is open to interpretation. The perspective of this chapter is that such a combination of family qualities is associated with children's investment of attention-al energy in growth-enhancing activities, and thereby with the quality of their subjective experience.

The emphasis on experience adds a perspective that is missing from other family studies that rely on direct observations of family interaction. The approach here is informed by research on flow experiences, which are characterized by unselfconsciousness, clarity of goals and feedback, high concentration on a specific activity, and a heightened sense of control and intrinsic motivation (Csikszentmihalyi 1975, 1990). The family model used in this chapter initially arose from asking: "What type of family environment might be associated with optimal experience?" (Rathunde 1988, 1989a, b). This question can only be answered by collecting experiential reports from children, and interpreting them within a theoretical framework suited for thinking about such experience. Furthermore, because the "functional significance" or subjective meaning of an interpersonal context is the most important dimension to consider when assessing contextual influences on intrinsic motivation (Deci and Ryan 1987), a priority was also placed on childrens' perceptions of their families.

Thus, a questionnaire was constructed to measure relevant contextual dimensions, that is, those that corresponded to the characteristics of flow described earlier. Four factors resulted—support, harmony, involvement, and freedom (see methods)—that were related to the dynamics of optimal experience in the following way. Flow is generated by the interrelation of high perceived skills and challenges, or the coexistence of potent capacities and opportunities for attentional investment. It was hypothesized that support and harmony (integration) in a family would help children to "save" energy by reducing feelings of defensiveness and confusion, thus making it easier for them to enjoy and get interested in various tasks at hand. Families who, in addition, encouraged their childrens' personal involvement and freedom (differentiation), were expected to facilitate habits of pursuing important and challenging goals. In summary, the context of optimal experience in a family was thought to be similar to Dewey's (1938) conception of

[2] The assumption here, of course, is that such time for "exploration" is used wisely, and that teens do not take advantage of their parents support by wasting their time.

the context of interest in a classroom: adults provided conditions that enabled children to get momentarily involved with activities that had a long-term aim.

This chapter focuses on just one dimension of positive subjective experience—happiness—in order to provide a more detailed breakdown of the day-to-day activities of adolescents while at home. In addition, it compares complex and simple families on the Parent-Practices Questionnaire (Devereux et al. 1969) which asks specifically about parental behaviors. The Complex Family Questionnaire (CFQ) used in this study relies on adolescents' observations of family routines and expectations, not on adolescent perceptions of specific parental behaviors. Thus, the comparison of these two instruments may provide useful descriptive information on the interactional patterns of these parents and teen-agers.

In addition to the comparison of family measures, two hypotheses are proposed. First, because complex homes are theoretically more conducive to investments of attention in challenging tasks, we expect teens from such families to be happier doing productive activities such as everyday maintenance routines and homework. However, teens' reports of happiness while engaged in widely enjoyed leisure activities (e.g., watching TV) are not expected to differ as the result of family differences.[3] A second hypothesis states that if a complex family provides a more supportive and interesting environment for adolescents, one might expect teens from such families to be happier around other family members, such as their parents, and to have more contact with them over the course of a week.

These hypotheses are stated based on a comparison of complex versus simple families, presumably the two types showing the clearest difference in adolescent quality of experience and productive use of attention. However, data is presented for four family types distinguished by the CFQ—complex (only) integrated (only) differentiated, and simple.

Method

Subjects

Subjects are 165 boys and girls from two middle-class suburban high schools in the Chicago area. These students were nominated by their teachers as having superior talent in the fields of math, science, art, music, or athletics, guided by the criterion that the students were involved with school organizations (math teams, orchestra, athletic teams) or advanced placement classes. Students and parents were contacted by mail with explanations of the study and were told its purpose

[3] The fact that these teen-agers are recognized as talented adds significance to this first hypothesis. In other words, the choice of whether to spend more time doing productive or leisure activities is a salient one in these students' young lives. Such choices are likely to play an important role in determining which ones in the group will develop their talents.

was to identify factors that help or hinder development. No compensation for participation was offered and half of those contacted consented to participate.

Procedure

In the first year of the study, each student met with a member of the research staff three to four times at a school office. He or she participated in an in-depth interview, and filled out several questionnaires, including the Parent-Practices Questionnaire (Devereux et al. 1969). Students were given materials for the Experience Sampling Method (ESM) which uses electronic pagers and a corresponding booklet of self-report forms with both open-ended and scaled items (Csikszentmihalyi and Larson 1987; Csikszentmihalyi et al. 1977). Students carried their pagers for 1 week while being sent 7–9 random signals daily between the hours of 7:00 a.m. and 10:00 p.m. during the week, and 7:00 a.m. and midnight on the weekends.

At the end of the third year of the study additional family information was collected using the Complex Family Questionnaire (CFQ), and other information relevant to teens' development of talent was gathered (e.g., teacher ratings, grades, students' future plans, etc.). Approximately 83 %, or 165 out of the original 200 students in the study completed the CFQ: this group constitutes the present sample.

Measures

Complex Family Questionnaire (CFQ). This measure was designed so that teenagers could assess their day-to-day family routines and shared expectations. The assumption is that such routines and expectations reveal a family's "paradigm," which has a profound effect on members' phenomenology, and can "guide the family to sample certain segments of its world and ignore others" (Reiss et al. 1983, p. 80).

The 24 items used were organized around the factors of support, harmony, involvement, and freedom, aspects of family interaction important for teen's quality of subjective experience (see Rathunde, 1988, 1989a, b). They were presented as questions to be answered on 4-point scales: 1 = definitely no, 2 = usually no, 3 = usually yes, 4 = definitely yes. Items were worded in both positive and negative directions. They were phrased in an "observational" style, addressing the family system as a whole (e.g., "If you are feeling depressed, or are having a problem, do others notice even though you may not say anything about it?" [support], "Would you say there was much bickering or arguing in your family? [harmony], "Are family members serious and intense when engaged with things that are important to them?" [involvement], "Is it hard to find privacy, and escape into your "own world" at home when you need to?" [freedom]).

Exploratory factor analysis using varimax rotation and an analysis of internal consistency (Cronbach's alpha) were used to assess the reliability of the measure.

These analyses supported the theoretically generated components of complex families. Four factors emerged with eigenvalues greater than 1.0, accounting for 43 % of the variance. Four subscales were constructed: support (eight items, $\alpha = 0.78$); harmony (five items, $\alpha = 0.72$); involvement (seven items, $\alpha = 0.50$); and freedom (four items, $\alpha = 0.62$). Measures of internal consistency do not yield appropriate indicators of reliability when assessing a small number of items, however, the alphas for support, harmony, and freedom were moderately high and satisfactory, and the alpha for involvement was only slightly lower. The lower "involvement" alpha suggests that some of the responses concerning opportunities for intense personal involvement (e.g., questions about political, spiritual, or competitive involvement) were not highly intercorrelated. Nevertheless, these responses still provided pertinent information about basic channels for attentional investment.

Subscales were not constructed for use in a linear analysis, whereby the relative contribution of each scale would be assessed in the sample as a whole; rather, they were used to create a fourfold family typology for comparison (see also Baumrind, 1987; Hinde and Dennis 1986; Reiss et al. 1983). The assumption here is that keeping the "family" as the primary unit of analysis has several advantages in terms of conceptualizing family interaction and stating hypotheses, and presenting and communicating results. The subscales were utilized to construct a family typology in the following way. (a) an integration score ($\alpha = 0.84$) was computed for each family by adding the subfactors "support" and "harmony"; (b) a family differentiation score ($\alpha = 0.60$) was computed by summing "involvement" and "freedom"; (c) median splits were made on the distributions of the integration and differentiation scores, allowing four groups to be distinguished: complex families (high/high, $\boldsymbol{N} = 48$); integrated families (high/low, $\boldsymbol{N} = 34$); differentiated families (low/high, $\boldsymbol{N} = 26$); and simple families (low/low, $\boldsymbol{N} = 56$).

The Parent-Practices Questionnaire (PPQ). The PPQ (Devereux et al. 1969) contains 30-items (scaled 1–5 "never" to "very often") which measure 14 dimensions of parental behavior as seen by the child (see Appendix). Several of these dimensions (e.g., nurturance, consistency, instrumental companionship, and encouragement of autonomy) are relevant for the four factors on the CFQ (support, harmony, involvement, and freedom, respectively). For this reason, they are well suited for comparative purposes. The PPQ was completed 2 years prior to filling out the CFQ thus in addition to providing information on their perceptions of specific parental behaviors, the comparison permits one to assess teens' perceptions of their families over time. The 30-items were answered separately regarding perceptions of mother and father behaviors. For comparison to the CFQ—which assesses perceptions of the entire family system—scores for mother and father were combined, creating one index of, for instance, parental nurturance.

Experience Sampling Method. The ESM gives systematic access to subjective experience in naturalistic settings. Measures of adolescent happiness at home will be obtained using one variable—happy—from the ESM self-report form. "Happy" is a variable based on a 7-point semantic differential, the opposite being "sad." The adolescents indicated how happy they were at 2,400 random moments when the pager signaled them at home, approximately 15 beeps per student (students averaged

35 beeper responses for the entire week). Raw scores for happiness were first converted to ζ scores based on the groups' average for its 2,400 responses (e.g., a happiness score of 0.0 when, for instance, watching TV, indicates that this activity produces average happiness at home.) Mean z scores for happiness were computed for each family group, in several different activities, and used for comparison.

Percent of Time Doing (Various Activities). Adolescents also responded to the open-ended ESM question: "What were you doing as you were beeped." Answers were originally coded into approximately 230 subcategories of activities (interrater agreement > 90 %). This chapter breaks down these activities into 10 categories for describing the overall adolescent pattern. Percentage scores were computed as a ratio of the total number of ESM signals responded to while doing a particular activity, to the total number of signals responded to at home (e.g., If 600 of 2,400 ESM responses were coded as "eating," "percent eating" would equal 25 %). Because all ESM signals were sent randomly, and subjects had an equal opportunity to answer them, these percentages are used as estimates of adolescent time usage at home.

Results

Happiness at Home

Table 19.1 summarizes teens' time budgets and mean happiness scores in various activities, both for the overall week at home and for times when they were with their parents. By far the largest percentage of home time use (28 %) was spent involved with various media (TV, radio, or print); although these activities produced only average happiness (–0.03). Next came homework (17 %), and despite being talented in at least one subject at school, homework produced significantly less than average happiness at home ($p < 0.001$). The next largest category—maintenance (13 %)—also produced less than average happiness ($p < 0.05$). When grouped together, what might be termed *home routines:* maintenance (e.g., dressing, washing, etc.), miscellaneous (e.g., puttering around the house, looking for something), housework (cleaning, cooking, washing dishes), and eating accounted for 37 % of time spent at home, and produced average to low happiness. Finally, the least often engaged activities produced greater happiness: games/hobbies ($p < 0.001$), talking ($p < 0.01$), and chatting on the telephone ($p < 0.05$). A Spearman rank-order correlation coefficient (rank by time vs. rank by happiness) was computed to assess this reverse trend. Results showed that the activities engaged most often at home produce the least happiness, that is, frequency and happiness were negatively correlated ($r = 0.93$).

When teens were at home with their parents, they spent approximately half as much time doing homework and maintenance activities, and about twice as much time talking, eating, and socializing. When teens' happiness doing these activities with parents present was compared to the times parents were not around (not represented in Table 19.1), only two significant differences appeared: happiness

Table 19.1 Percent of time spent and average happiness in various activities at home for the overall week and just with parents

Activity	Overall		With parents	
	% time	Happiness	% time	Happiness
Media	27.9	−0.03	32.2	0.04
Homework	16.7	−0.19	9.8	0.08
Maintenance	13.0	−0.12	7.2	0.10
Miscellaneous	11.3	0.04	9.9	0.27
Housework	6.7	0.07	6.6	0.01
Eating	6.4	0.11	13.1	0.05
Games/hobbies	6.2	0.30	4.3	0.31
Talking	6.0	0.27	13.2	0.01
Telephone	4.9	0.20	1.5	0.45
Socializing	0.9	0.35	2.1	0.31

Note The number of ESM signals for the overall week = 2,410, with parents = 515. Happiness scores are *z* scores (0.0 = average happiness at home)

while talking was significantly higher when parents were not around ($p < 0.001$), and homework seemed to be more enjoyable with parents present ($p < 0.05$).

In conclusion, we see that teen-agers report being happier at home in the relatively rare instances when they are engaged in games, hobbies, and active social interaction. They are quite unhappy when involved with activities that should prepare them for productive adult roles (i.e., when they are studying, working, or doing necessary maintenance chores). Eating, housework, and television viewing provide average levels of happiness at home.

Family Complexity and Parental Practices

Table 19.2 summarizes the highest and lowest means for complex, integrated, differentiated, and simple families on the 14 dimensions of the PPQ.[4] The descriptive pattern that emerged from this arrangement of high and low means suggested family

[4] We prefer in this chapter to use an analysis of variance across type of family context to summarize the data. It is expected that integration or differentiation may be of greater or lesser consequence in relation to particular dependent variables (i.e., one or the other may produce stronger main effects), but the overall comparison of "families" across the entire set of data is felt to provide a more appropriate level of abstraction for presenting, communicating, and interpreting the findings. However, it is important to demonstrate that both integration and differentiation are important, or that there is sometimes an interaction between them, in order to justify the use of a multidimensional construct (see Carver 1989). This issue was addressed in prior research (Rathunde 1989b) which demonstrated positive main effects for family integration, differentiation, and their interaction in various analyses. Thus, it was clear that both components had an impact on teens' experience, and that they sometimes "synergistically" interacted to produce a positive effect. Some of these previous findings are discussed later.

Table 19.2 Family group comparison on the parental-practices questionnaire grouped by high and low means

Highest mean on PPQ	Lowest mean on PPQ
1. Complex	Achievement demands
Instrumental companionship	Deprivation of privileges
Principled discipline	Protectiveness
Parental consistency	Affective punishment
2. Integrated	Physical punishment
Nurturance	Expressive rejection
Indulgence	Prescription responsibility
Encouragement of autonomy	Parental use of power
3. Differentiated	Principled discipline
Achievement demands	Indulgence
Expressive rejection	
Prescription responsibility	
Protectiveness	
Affective punishment	
4. Simple	Nurturance
Physical punishment	Instrumental companionship
Deprivation of privileges	Encouragement of autonomy
Parental use of power	Consistency

differences that were consistent with the family typology based on the CFQ. In other words, adolescents who perceived their families as "integrated" (based on the CFQ), 2 years earlier had rated their parents highest on nurturance and indulgence, and the lowest on their use of punishment, rejection, and power. Those in the differentiated group had rated their parents highest on achievement demands, rejection, prescription responsibilities, and the lowest on indulgence. Teens who perceived family complexity had rated their parents highest on instrumental companionship, principled discipline, and consistency, whereas simple families had the lowest means on these dimensions, and the highest means on parental use of physical punishment, deprivation of privileges, and use of power.

Six significant differences ($p < 0.05$, sec Table 19.3) emerged between complex and simple families, five of which (nurturance, consistency and principled discipline, instrumental companionship, and encouragement of autonomy) resembled the main dimensions the CFQ was designed to measure: "support," "harmony," "involvement," and "freedom." Adolescents from simple families also rated their parents higher on the dimension "parental protectiveness," although the title of this factor is somewhat misleading. Protectiveness in this context actually implies a lack of parental trust (e.g., "She worries that I can not take care of myself").

Table 19.3 Family group comparison on the parental practices questionnaire

Variable (n)	Complex (46)	Integ. (34)	Differ. (22)	Simple (54)	F	T
Nurturance	22.8	23.0	20.2	18.8	9.4****	4.4****
Instrumental companionship	13.6	13.0	13.0	12.1	1.9	2.3**
Physical punishment	6.9	6.7	7.1	7.3	0.8	–1.1
Achievement demands	5.6	5.7	6.6	6.5	1.7	–1.8*
Expressive rejection	11.0	10.8	14.2	12.2	6.0****	1.8*
Principled discipline	15.4	15.0	12.8	13.4	4.8****	3.0***
Deprivation privileges	6.7	6.9	7.6	7.9	1.4	–1.9*
Prescription responsibility	16.7	16.6	16.9	16.7	0.1	0
Indulgence	6.0	6.5	5.4	5.7	2.2*	0.8
Protectiveness	8.4	9.7	11.7	10.7	5.3***	–3.3***
Affective punishment	8.8	9.3	11.2	10.1	2.9**	–2.0*
Use of power	12.3	11.1	12.4	12.5	1.5	–0.3
Encourage autonomy	15.8	16.0	14.8	13.6	6.4****	3.4***
Consistency	17.1	16.5	16.3	15.6	2.9**	2.9***

Note Contrasts (*t*-values) compare the complex and simple groups. For these analyses, reported p-levels are one-talied
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$; ****$p < 0.001$

Happiness and Family Context

To facilitate family group comparisons, the 10 major activities in the home were further compressed into four categories: home routines (maintenance + miscellaneous + housework + eating), leisure (media + games/hobbies), productive (98 % of which is homework), and interaction (talking, telephone, and socializing). Data are summarize for all four family types, with a priori comparisons of complex and simple families.

A 4 × 4 analysis of variance was performed on happiness scores, category of activity × family type. Main effects on overall happiness for category of activity [F (3, 2380) = 11.44, $p < 0.001$] and family type, F (3, 2380) = 11.55, $p < 0.001$] were found as expected; there was no interaction (see Fig. 19.1).

One-way ANOVAs were also performed on each activity separately, two of which—home routines ($p < 0.001$) and productive work ($p < 0.001$)—reached significance. Complex families showed the highest overall happiness at home, especially in family routines and productive work. In both of these contexts, a priori contrasts between complex and simple families reached significance ($p < 0.01$). However, the four groups reported similar amounts of happiness in leisure activities (mainly television viewing), which we expected adolescents to enjoy regardless of family context. Neither did the groups differ on happiness in interaction, presumably for the same reason. Teen-agers from differentiated

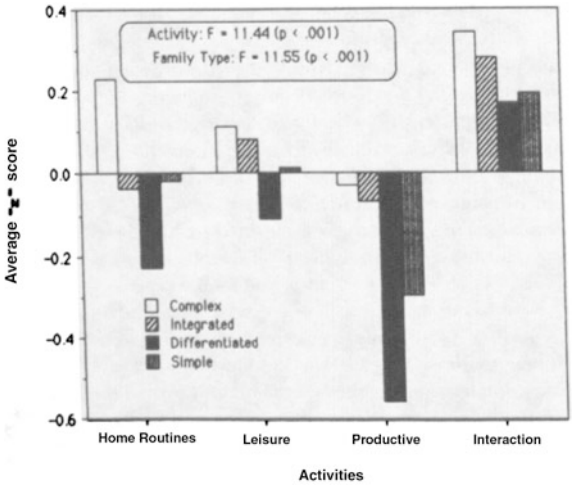

Fig. 19.1 Mean happiness by family type in various activities

families reported the lowest happiness in all four contexts, especially in productive activities like doing homework.[5]

Finally, it was expected that the presence of parents would be more damaging to teens' happiness in simple, rather than complex families, and those in the latter group would thus have more parental contact. To carry out the first part of this analysis, we compared the average happiness scores of teenagers from these two groups, both with and without parents, while doing the same 10 activities. Results showed that for teens from complex homes, the presence of parents improved happiness in 7 out of 10 activities compared (the exceptions being socializing, playing games, and doing miscellaneous activities). Children in this group, for instance, were happier eating with their parents than eating alone or with siblings. In contrast, when parents were around their children in simple families, happiness was lower in 7 of 10 activities (the exceptions were homework, maintenance, and media). A Chi-square test on these proportions (i.e., complex/simple X percent higher happiness/lower happiness with parents) was significant ($X^2 = 3.2$, $df = 1$, $p < 0.05$, one-tailed).

Teens from complex homes also had the most contact with parents (i.e., at least one parent was present approximately 24 % of the time when these teenagers

[5] To assess separate effects for integration, differentiation, and their interaction, a 2 × 2 ANOVA (high/low integration by high/low differentiation) was also performed on the ESM reports of happiness in routine and productive activities. Family integration produced a significant main effect in both contexts and differentiation did not, however, there were significant interactions for each. The interaction is evident in two areas: (a) the presence of differentiation without integration is particularly deleterious to adolescent happiness doing homework, and (b) the copresence of these two dimension. is particularly beneficial to teens' happiness while doing home routines (see Fig. 19.1).

responded to the beeper at home, or 165 out of 675 beeper responses); the corresponding figure in simple families was the lowest of the four groups—19 %. A Chi-square test on these proportions (complex/simple X percentage with/percentage without parents) also showed a significant difference ($X^2 = 5.29$, $df = 1$, $p = 0.01$, one-tailed). Although this time difference appears small, if one estimates that teens spend about 7 waking hours a day at home (approximately 50 h per week), and if the random sampling of the beeper accurately reflects parental contact, this means that teens from complex homes would have 2 to 3 h more contact with their parents per week.

Discussion

The overall findings of the study supports initial expectations: (a) some convergent evidence supporting the family typology was provided by the PPQ: (b) happiness in home routines and homework was highest for children in complex families, but not in leisure; and (c) teens from such families had more contact with their parents over the course of the week, and their presence generally enhanced their childrens' happiness.

Adolescent responses on the PPQ were consistent with their membership in complex, integrated, differentiated, and simple family types. In addition to the pattern that emerged for the 14 overall parental behaviors, the particular dimensions that reached significance when comparing complex and simple families were precisely the ones that most resembled the four subfactors on the CFQ. For instance, teen-agers from complex homes reported more familial support on the CFQ or being at ease and finding a sense of togetherness at home. Two years earlier on the PPQ these same adolescents reported their parents were more "nurturant": comforting when there was a problem, and available to talk. Their higher ratings of harmony on the CFQ suggested an expectation for family life to have little conflict and to be calm, orderly, consistent, and clear. The complex group earlier affirmed parental "consistency" on the PPQ (e.g., "When I do something s/he doesn't like, I know exactly what to expect from him/her"), and "principled discipline" (e.g., "When she wants me to do something, she explains why"). Involvement on the CFQ meant that teen-agers in the complex group perceived family members as intense and active in various ways. Their earlier PPQ endorsement of "instrumental companionship" suggested that parents had acted as important resources of information and instruction for them. Finally, higher responses on the CFQ dimension of freedom indicated teens' expectations for a complex home to provide quiet and privacy to work, and the opportunity to chose intrinsically motivating activities without constant interruption. Two years earlier these same teenagers reported their parents' "encouragement of autonomy": "S/he lets me make my own plans…" and "…try new things on my own."

Other findings suggest the importance of the copresence of integration and differentiation at home, and how the existence of one or the other can change the

way teenagers interpret the actions of parents. For instance, teens in differentiated families more often view parental discipline as based on the use of guilt (affective punishment) and nagging (expressive rejection), whereas discipline is perceived as firmness and fairness (consistency and principled discipline) in a complex family. The missing component that brings about this change of interpretation is the presence of family integration in complex homes (i.e., both the differentiated and the complex groups are high on the CFQ dimension of "differentiation," but the latter group is also high on the dimension of "integration"). The synchronous presence of integration allows a similar message—"be responsible, independent, and mature"—to be filtered through a context that is also supportive and reliable. Perhaps this is why the young members of differentiated and simple family groups found the least happiness in home routines, whereas those in complex families clearly found the most happiness. It seems reasonable that the consistency, clear rules and standards, as well as the warmth and cooperation in complex families have made the everyday routines both more efficient and enjoyable (i.e., one knows what one has to do, has done it many times before, and others pitch in).

Attitudes toward school performance also take on different connotations in a context that includes family integration. For instance, parents in differentiated families are seen by their children as putting extrinsic pressure on them to achieve (i.e., achievement demands). Parents in complex families are, in contrast, seen as helpful teachers (instrumental companionship). Ironically, the differentiated groups' happiness while doing homework was the lowest mood score across all activities and groups, whereas teen-agers in complex families—with the lowest achievement demands—reported the highest happiness when doing homework. In general, a differentiated organization, not a simple one, produced the lowest happiness in all four major activity contexts. It seems that this type of family system, which sets high standards and expectations for the individual child, but does not provide appropriate emotional supports, has the most aversive effect on a adolescents' moods at home.

Integrated families, on the other hand, seem to have parents who make few demands, and who do not stress individual assertion. The integrated group had the highest "parental indulgence," and the lowest "prescription of responsibilities." This finding corresponds to previous research, which found that of the four family types, teens from complex homes spent the most time doing productive activities, whereas those from integrated families spent the most time involved in leisure pursuits (e.g., they invested 8 % more time in leisure than the other groups, when just looking at the proportion of time they spent with their parents; Rathunde 1989b).

This pattern of results suggests that one of the main advantages of complex families, from the perspective of the child's development, is that they offer a context where productive activities like homework and routine home maintenance can be experienced as relatively happy. These important activities typically produce sadness in teen-agers, but in complex families even these challenging tasks are experienced with moderate happiness. If productive activities are experienced as subjectively rewarding, one would expect that they will be repeated in the

future. Thus children from complex families are more likely to engage in demanding tasks, and therefore grow more readily into productive roles than children from differentiated and simple families.

Some confirmation of these positive developmental expectations has been found (see Rathunde 1989b). For instance, consistent with the findings reported here for productive work at home, teens from complex families reported a superior quality of experience in a variety of productive contexts at school. They reported being more happy, alert, and concentrated in their talent areas (math, science, music, athletics, and art), and in their regular classes and studies. In addition, while doing these activities they were more often in a state of flow. They performed better at school—as indicated by their teachers' grades and ratings—although not possessing superior ability or intelligence (PSAT scores). Teachers in the students' particular talent areas rated them as more open to new and difficult challenges which utilized their full potential, able to concentrate and pay attention with persistence, and more likely to find the intensity of this process enjoyable. The single item that most distinguished the complex group on the teachers' ratings was their "quality of attention." Teens from complex families had higher teacher ratings in four of the five talent areas, the exception being "athletics" where they scored just below the differentiated group.

The Question of Response Bias

The data suggests that differences between family groups cannot be explained simply as biases in the adolescents' perceptions. Teen-agers reported being equally happy when involved in leisure or interaction, regardless of differences between their families. If higher reports of happiness were simply the result of a positive style of responding to the ESM, differences would be evident across all contexts. Rather, it is plausible that leisure is enjoyed by most teen-agers, whereas home routines and homework generate more variance in their happiness. Different mood reactions in the presence or absence of parents also argues against the response bias explanation. In other words, teens' moods in complex families improved in 7 of 10 activities with parents present, whereas the opposite pattern occurred in simple families. This suggests that whatever their response styles, the former group had a more positive reaction to parents, with whom they also had more contact with over the week of experience sampling.

Finally, questionnaires filled out by the parents of these two family types paralleled their childrens' perceptions of differences concerning family support and harmony, and personal involvement and freedom (Rathunde 1989b). For instance, parents in complex versus simple families reported higher rewards from helping their child mature, less disagreement with their spouse, more life satisfaction, and they placed a greater emphasis on the importance of intrinsic versus extrinsic rewards for their child's future career. When teacher responses are also taken into account, two independent sources of information are seen as

corroborating important aspects of the teen-ager's reports, thus making improbable the validity of a bias explanation of the results.

General Issues and Conclusions

Ideas about the benefits of a balanced family system are, of course, not new. Similar suggestions for a combination of family supports and demands, connection and separation, have convincingly been argued by several others (Baum-rind 1987; Grotevant and Cooper 1983; Maccoby and Martin 1983). What the present approach emphasizes, however, is recognizing the important roles that attention and positive subjective experience play in making these contexts effective. When adopting this more phenomenological or moment-to-moment perspective, a greater emphasis is placed on the many small experiential "building blocks" that over time accumulate toward positive outcomes. The perspective in the present chapter is that a complex family creates a prolonged supportive environment where children are more likely to invest time and energy in growth-producing activities, and thereby experience positive subjective rewards in the process.

Children do not need parental support and stimulation to enjoy peer interaction, watching television, or playing a game. They will be happy in these activities regardless of family context. But they do need such home qualities in order to find enjoyment in activities that require additional effort, such as studying or helping out around the house. Because it is precisely these activities one must learn to enjoy if one is to lead a productive and happy adult life, an important aspect of a complex family is its ability to promote happiness in children when engaged in challenging tasks. Because the day to day routine in such families does not drain childrens' energy in insecurity, confusion, rebellion against lack of autonomous opportunities, and so on, and because it encourages children to make choices and get involved, a pattern of engaging challenging and growth-oriented tasks develops more easily.

To create more complex homes, parents can be less vigilant about pressing their children to achieve, and pay more attention to helping them discover the ongoing rewards of pursuing goals. In other words, pressuring children may be successful in communicating the need for making plans and working diligently, but it may destroy the relaxed and supportive context that best suits such work. Parents (and teachers) can facilitate the day to day process by noticing how a child is feeling, especially when involved with tasks that test the limits of their attentional control. Thus, an initial step in creating complex homes is recognizing when optimal experience is or is not occurring, and when a child is feeling bored, anxious, or apathetic. Only then can a parent take further steps or exercise other skills that can help the child to stay on task.

This seems a simple enough prerequisite, but upon reflection it is a rare and difficult practice. Seldom does the busy teacher or parent have the time to invest in becoming such a skilled observer. Nevertheless, one can simply ask a child how they are feeling, and much can be learned by noticing physical cues such as facial

expressions, posture, fidgetiness, and so on. Homes that are integrated make family members' thoughts and feelings more transparent to one another, thus improving communication of this kind. Offering the right suggestion, providing some needed distraction or information, or simply giving a timely hug that benefits the child's momentary state of mind, ultimately depends on such closeness and family integration.

Just as important is knowing what not to say, and when not to interfere with a child's actions and decisions. Family differentiation provides each family member some opportunities to select and involve themselves with interesting challenges, to set goals, and to plan and pace actions designed to achieve them. When such opportunities are denied, a child is less likely to develop selective habits, even if the home is warm and loving. Perhaps the best way parents can express the values of differentiation is to model self-determined involvement by pursuing goals they deem important. Another way is to invite dialogue that challenges each family member to defend and support their point of view. Such talks may help a child to discover ways they are unique from other family members, and thereby increase their awareness of further opportunities to distinguish themselves.

An environment where a child feels comfortable and secure, and where he or she can exercise some selective control, provides flexible conditions for education and development. To create such an environment can also be an enjoyable challenge in its own right, one that can make parenting more rewarding.

Directions for Future Research

This chapter focused on young people who had demonstrated superior intellectual, physical, or artistic talents, and a special emphasis was placed on the relationship between family context and the productive use of attention. The results of the study, however, need not be confined to talented adolescents. In other words, there is no necessary assumption of talent in order for a complex family system to enhance childrens' experience and development. Thus, the results here should be applicable to the general population of teen-agers (and presumably younger children as well). It is even possible that complex families may show a stronger association with positive adolescent experience and performance in a normal population of teen-agers and parents, due to the greater variability of the sample (i.e., the talented sample may have a restricted range of "good" students and "good" parenting). These are questions for future research.

Follow-up studies that are more specific in their focus, and which utilize additional "experience-near" methodologies besides the ESM (e.g., more interviews and direct observations of family interactions), would also be helpful in fleshing out a more detailed picture of everyday life in complex families. In particular, more specific information is needed on how the perceptions of integration and differentiation develop in a family.

Two broad assumptions that inform this approach could prove fruitful for subsequent research on the family. One is that by examining the flow of attention in optimal experiences, much can be learned about structuring social contexts so as to facilitate productive and enjoyable uses of attention. In other words, that something important can be learned about family life by exploring, for instance, the subjective rewards of an expert musician playing a challenging piece. Although at first glance this seems unlikely, further scrutiny suggests that despite vast differences in the size and content of "domains" or activities (e.g., music, family life, or cultural life) they are all processed through a consciousness that has certain parameters for optimal functioning. When the domains are structured such that the capacity of an individual's attention is conserved—through actions that are highly practiced and automatic, and where the domain continually affords new opportunities that demand the fruits of such practice and more, the full utilization of attention allows optimal subjective rewards to emerge.

A second, and perhaps more central assumption, is that much can be learned by seeking out the best examples of human functioning. This was the inspiration behind Maslow's (1968) work on peak experiences that he drew from Aristotle: "It is the things which are valuable and pleasant to a good man that are really valuable and pleasant." The same logic can be applied to family systems, and other social or cultural systems—even though it is seldom so applied in contemporary thought. One reason, perhaps, is because researchers' attempts to guard against their implicit prejudices have made them forego any conceptions of optimal functioning. This often prudent fear, however, can work against the desired ideal of learning to appreciate the complexity of various systems in their own light; it is precisely the study of optimally functioning individuals and systems that can provide the most instructive lessons on the appreciation of individual variation, and of group unity.

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Appendix: Parent-Practices Questionnaire (from Devereux et al. 1969)

A. Nurturance

(1) She comforts and helps me when I have trouble.
(2) She makes me feel I can talk with her about everything.
(3) She makes me feel she is there when I need her.

B. Physical punishment

(4) She slaps me.
(5) She physically punishes me.
(6) She says she will physically punish me if I don't behave better.

C. Achievement demands

(7) She keeps after me to do better than other children.

D. Instrumental companionship

(8) She helps me with homework or lessons, if there is something I don't understand.
(9) She teaches me things I want to learn.

E. Expressive rejection

(10) She nags at me.
(11) She scolds me.

F. Principled discipline

(12) When she punishes me, she explains why.
(13) When she wants me to do something, she explains why.

G. Deprivation of privileges

(14) She punishes me by not allowing me to be with my friends.
(15) She punishes me by not letting me use my favorite things.

H. Prescription of responsibilities

(16) She expects me to keep my things in good order.
(17) She expects me to help around the house or yard.

I. Indulgence

(18) She lets me off lightly when I do something wrong.
(19) She cannot bring herself to punish me.

J. Protectiveness

(20) She worries that I cannot take care of myself.
(21) She won't let me go places because something might happen to me.

K. Affective punishment

(22) When I do something she doesn't like, she acts hurt and disappointed.
(23) She punishes me by trying to make me feel guilty or ashamed.

L. Power

(24) She wants to know exactly where I am going when I go out.
(25) She expects me to tell her exactly how I spend my pocket money.

M. Encouragement of autonomy

(26) She encourages to try new things on my own.
(27) She lets me make my own plans about things I want to do even though I might make a few mistakes.

N. Consistency

(28) I know what she expects of me and how she wants me to behave.
(29) When I do something she doesn't like, I know exactly what to expect from her.

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Chapter 20
Individual and Situational Factors Related to the Experience of Flow in Adolescence

A Multilevel Approach

Jennifer A. Schmidt, David J. Shernoff and Mihaly Csikszentmihalyi

A fundamental issue pursued by researchers in positive psychology involves defining what constitutes a good life and understanding how individuals can create one. From the perspective of flow theory, "a good life is one that is characterized by complete absorption in what one does" (Nakamura and Csikszentmihalyi 2002, p. 89). Born out of a desire to understand intrinsically motivated activity, *flow* refers to a state of optimal experience characterized by total absorption in the task at hand: a merging of action and awareness in which the individual loses track of both time and self, The flow state is experientially positive, and out of the flow experience emerges a desire to replicate the experience. Over the past three decades, Csikszentmihalyi and colleagues have developed theoretical constructs and empirical research tools to better understand the nature, origins, and consequences of this state of optimal experience called flow. In this chapter, we describe the flow model and then present data analyses in which we explore the personal traits and contextual conditions associated with the experience of flow among adolescents in the United States. We demonstrate the utility of hierarchical linear modeling (HLM) for exploring flow using a complex data set characterized by repeated measures.

The Flow Model

In an investigation of the nature of enjoyment, Csikszentmihalyi (1975/2000) interviewed artists, rock climbers, chess players, surgeons, factory workers, and others about their work and leisure activities. The investigation focused on those

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activities that individuals did for the sheer enjoyment of doing them as opposed to any end product resulting from the activity. Countless interviews with individuals from a variety of backgrounds revealed remarkable similarity in respondents' descriptions of their subjective experience in these activities. These *autotelic* activities (activities for which participation itself is the goal) shared a similar phenomenology in that participants consistently described optimal states of complete absorption, focus, and enjoyment, Further examination also revealed consistency in the conditions under which these optimal states most often occurred. Numerous researchers have confirmed commonalities in optimal experiences and their underlying conditions (Csikszentmihalyi 1990, 1996; Jackson 1995, 1996; Massimini and Carli 1988; Perry 1999). The optimal State described by individuals is most commonly characterized by: (1) intense concentration on the task at hand; (2) a deep sense of involvement and merging of action and awareness; (3) a sense of control over one's actions in dealing with the task at hand; (4) enjoyment or interest in the activity; and (5) a distorted sense of time (usually that time has passed very quickly). During the process of gathering these descriptions, several interviewees described themselves as "being in flow" or "flowing." Thus, experiences characterized by such descriptions have become known as *flow experiences* or *flow states.*

The specific activities from which individuals derive flow experiences vary widely. Interviews with men and women of different ages, classes, and cultural backgrounds have revealed that the flow state can emerge from involvement in a variety of activities, including athletics, performing surgery, tending cattle, haggling in the marketplace, working on a factory line, reading, and writing. While there is considerable variation in the particular activities that lead people to experience flow, there are a number of phenomenological conditions that are typically present when flow does occur, regardless of the specific activity in which one is engaged. These conditions include: (1) engagement in activity chosen for its own sake—not a necessary, but a facilitative condition; (2) perceived challenges of the task at hand that are relatively high and in balance with one's perceived skills; (3) clear proximal goals that are regarded as important; (4) immediate feedback indicating one's success at meeting these goals; and (S) highly focused, rather than divided or scattered, attention.

Of course, some activities by their very nature are structured in such a way that proximal goals and feedback are more salient, challenges can be manipulated to best match one's skills, and distractions are minimized to focus attention. Indeed, there is some evidence that certain activities (e.g., making musk, competitive athletics) are more likely than others to produce flow (Csikszentmihalyi 1990). Nevertheless, flow refers only to a subjective phenomenology, suggesting that what matters most is that these conditions are salient to the individual, not necessarily inherent to the activity itself. Individuals have the capacity to identify challenges in seemingly unchallenging situations, define proximal goals and rules for engagement, and focus attention in such a way as to create the conditions for

Bow even when such conditions are absent from the task at hand. What is most essential for the experience of flow appears to be one's subjective perception of challenge, skills, goals, feedback, autonomy, and focused attention. Accordingly, numerous investigations have documented the flow state among individuals while doing daily household chores (Csikszentmihalyi 1990), working in factory jobs (LeFevre 1988), living in concentration camps (Logan 1985), and in other situations that might appear on the surface to be counterproductive to the experience of flow (for a review, see Csikszentmihalyi 1990).

The development and refinement of the flow model has a rich history spanning the past three decades. As a thorough account of the theory's history and development is beyond the scope of this chapter, the reader is referred to Csikszentmihalyi (1990) and Nakamura and Csikszentmihalyi (2002) for a more detailed discussion.

The Systematic Study and Measurement of Flow

The flow model emphasizes the phenomenology of the interaction of the person with one's environment. Like many contemporary theories of human behavior and development (see Magnusson and Stattin 1998), the flow model acknowledges the dynamic system that is created by the person in context, recognizing that one's experience is a product of interaction with one's environment at that moment (Csikszentmihalyi 1985; Nakamura Csikszentmihalyi 2002). While this interactional viewpoint is fundamental to the theory, capturing the interplay between person and environment can be extremely difficult to accomplish in empirical research studies. The earliest studies of flow relied on qualitative data gathered in open-ended interviews in which participants were asked to describe their subjective experience and antecedent conditions surrounding times of deep enjoyment and absorption (Csikszentmihalyi 1975/2000). Subsequent research employed paper-and-pencil questionnaires to measure specific dimensions of the flow experience and to compare individuals in the frequency or nature of their flow experiences (Delle Fave and Massimini 1988; Jackson and Marsh 1996; Mayers 1978; Parks 1996).

Current understanding of flow has been greatly enhanced by the development and use of the experience-sampling method (ESM; Csikszentmihalyi et al. 1977). By signaling respondents periodically throughout their waking hours over a period of several days and asking them to report on their immediate experiences, the ESM addresses the problem of recall and estimation errors inherent in surveys and Interviews. Respondents carry a paging device (e.g., programmable wristwatch or handheld computer) that signals them at random moments throughout the day. Each time they are signaled, respondents complete a brief questionnaire in which they answer open-ended and scaled questions about the day and time of the signal and their activities and thoughts, as well as the cognitive, affective, and

motivational qualities of their experience. The signaling schedule, as well as the particular questions included in the ESM questionnaires, varies depending on the researchers' interests. ESM is the method used to identify and examine flow in this chapter. For a review of the methodological variations employed in ESM research, as well as indications of its reliability and validity, the reader is referred to Hektner et al. (2006), and Csikszentmihalyi and Larson (1987).

The ESM allows researchers to study momentary fluctuations in individuals' cognitive and emotional states in situ and link these fluctuations to particular contextual factors such as one's location, activities, or companions. The ESM is designed to capture both the external and internal dimensions of experience (Csikszentmihalyi and Larson 1984). External dimensions include the date and time of day, as well as one's physical location, activities, and companions. All of these elements paint the backdrop against which one's daily experience is lived out. Internal dimensions of experience refer to thoughts and feelings as respondents interact with other people and perform the activities that make up their daily life. A given moment can be characterized by both external dimensions (e.g., "It was 10:00 a.m. on Saturday"; "I was with my brother"; "We were playing racquetball"), and internal dimensions (e.g., "That activity was challenging to me"; "I was feeling happy"). While all of the information on the ESM is provided by the respondent and is thus subjective, the external-internal distinction is useful as a means of categorizing the types of experiential information the ESM provides and is the organizing framework for our explorations of the contextual and perceptual factors related to adolescents' experiences of flow.

Challenges and Skills as Primary Conditions for Flow

A substantial body of research has used the ESM to identify moments in individuals' daily lives wherein the conditions for flow are present. The conditions for flow are said to exist when participants report that the challenges of the situation and their skills in the situation are both higher than average. Researchers have examined how often the conditions for flow exist for a given person or group of people, and what types of activities are most likely to produce these conditions (Csikszentmihalyi 1975/2000; Moneta and Csikszentmihalyi 1996), Once the moments representing the flow conditions are identified, researchers examine the quality of reported experience to test empirically whether elements of the flow experience are more likely to occur when the flow conditions are present than when they are not. Using this method, researchers have demonstrated that adolescents and adults tend to report greater levels of concentration, enjoyment, involvement, interest, and control when challenges and skills are above average compared to when they are not. These analyses have provided empirical validation for the flow model in that they demonstrate that when the conditions for flow are present, the experience of flow is more likely to occur.

Limitations of Previous Research

As a result of the associations just described, many studies operationalize flow as the combination of simultaneous high challenge and skill (Csikszentmihalyi and Csikszentmihalyi 1988; Hektner 1996; Moneta and Csikszentmihalyi 1996). These studies have contributed greatly to our understanding of flow but are limited in several respects. First, one's perception of high challenges and high skills does not guarantee that the flow state will follow, the conditions of high challenge and high skill are a proxy for flow experiences—telling us only that, statistically speaking, flow may be more likely to occur. To further our understanding of the antecedents of flow, it is necessary to focus on those moments in which participants are actually experiencing flow—that is, when their ratings of concentration, interest, enjoyment, involvement, and control are simultaneously high. Moreover, flow theory identifies conditions for flow other than high challenges and skills—it is important to consider these also.

A second limitation is that most research studies to date examine the associations between challenge-skill and subjective elements of the flow experience independently. For example, in high challenge-high skill situations, average enjoyment has been found to be higher, but participants' levels of concentration, interest, and involvement were not taken into account (Massimini and Carli 1988; Moneta and Csikszentmihalyi 1996). To further our understanding of flow, it is necessary to consider multiple elements of the flow experience simultaneously in order to verify that the experiences we examine truly are flow experiences as defined descriptively.

A third limitation of studies on flow to date is that only minimal attention has been paid to person-level variation in the experience of flow among individuals. Several studies have compared the degree to which persons from different age groups, cultural backgrounds, or occupations encounter the flow conditions of high challenges and high skills, but few published studies have used ESM to systematically document person-level variation in the actual experience of flow. Moreover, given the interactional nature of the flow model, it is necessary to use appropriate statistical techniques to simultaneously explore such person-level variation along with variation due to features of momentary experience.

Aims of the Chapter

In this chapter, we begin to address the aforementioned limitations in ESM research on flow. Flow is operationalized in terms of the flow experience rather than the flow conditions. Using an individual's simultaneous ratings of concentration, enjoyment, involvement, interest, and control, each moment is characterized by the degree to which the respondent appears to be in a flow State. Thus our measurement of flow becomes continuous rather than categorical, and takes into account the full complement of cognitive and affective elements specified by flow

theory. We then develop analytical models to identify factors that are predictive of flow experiences. These predictors include the conditions of challenge and skill as they have been measured in previous research but are expanded to examine additional conditions proposed by the theory, including perceived autonomy, the importance of the activity (i.e., the clarity and relevance of goals), the perception of success (as when effective feedback is provided), and focus of attention. We also consider external dimensions of experience such as time of day, activities, location, and companions. Because the structure of ESM data is nested, with repeated observations nested within persons, we use multilevel modeling to more accurately assess the person-level and situational factors associated-with flow.

Method

Participants

We employed data from the Sloan Study of Youth and Social Development (SSYSD), a national longitudinal study investigating how students think about their lives in relationship to the future (Csikszentmihalyi and Schneider 2000). The data were collected in three waves: 1992–1993 (Year 1), 1994–1995 (Year 3), and 1996–1997 (Year 5). Twelve research sites across the United States were selected to represent variation in urbanicity, racial and ethnic composition, labor force composition, and economic stability. Data were collected through elementary, middle, and high schools in each site. While the original study included students who were in 6th, 8th, 10th, and 12th grades, the current analyses included data only from 10th and 12th graders. We focus exclusively on high school students because the daily activities of middle school children and high schoolers are qualitatively different. Because elementary school students frequently stay with the same teacher or classroom for the whole day, salient high school factors such as nonacademic classes or vocational education have little meaning for the elementary school population. There may also be corresponding age-related differences in the experience of engagement or flow. In a review of research on school-age students, Fredricks, Blumenfeld, and Paris (2004) reported that student engagement is likely to take different forms in elementary and high school. For example, students may not become deeply engaged in learning until they have acquired the intellectual capacity of later ages.

Though the original data were longitudinal, here we use only data collected in a single year for each participant. To maximize the high school sample, we selected 12th grade students ($n = 122$) in Year 1 of the study, 10th graders ($n = 83$) and 12th graders ($n = 87$) in Year 3 of the study, and 10th graders ($n = 80$) in Year 5 of the study. Thus, the sample consisted of 372 adolescents from three separate cohorts in the 1990s. The sample was 60 % female and 40 % male; 14 % of the sample was African American, 6 % was Asian American, 10 % was Latino, and 70 % was European American. Economically, 21 % of the sample was drawn

from communities that were characterized as lower or working class, while 62 % came from middle- or upper-middle class communities and 17 % came from upper-class communities.

Instruments

Experience Sampling Method

The ESM measures participants' location and activity, as well as affective and cognitive experiences, at random moments. Participants wore wristwatches programmed to emit random signals eight times each day for 7 days, between the hours of 7:30 a.m. and 10:30 p.m. In response to the signal, respondents answered a number of open-ended and scaled questions from an experience sampling form (ESF; to see a sample self-report form, see Csikszentmihalyi and Schneider 2000). A week's worth of ESFs was compiled in a logbook that participants carried during the week sampled. Participants selected for this study provided a total of 8,298 ESFs. The data obtained from the ESFs were used to compute measures of flow, as well as indicators of the internal and external dimensions of adolescents' immediate experience.

Surveys

Survey data provided information on participants' demographic characteristics, general self-perceptions, future orientation, and school experiences, as well as their relationships with family members and peers. All person-level variables used in our analyses were derived from these surveys.

Dependent Measure: Flow

A continuous measure of the flow experience (on a 9-point scale) was computed by taking the mean of individuals' momentary rankings of concentration, interest, enjoyment, involvement, and control at the time of the ESM signal. These five variables were chosen because the simultaneous experience of concentration,

interest, enjoyment, control, and involvement is definitional to the experience of flow,[1] This construct achieved a moderately high level of reliability ($\alpha = 0.68$).[2]

Independent Measures

Person-Level Factors

The person-level measures included in our analyses have been suggested by previous research on the autotelic personality and person-level correlates of flow (Adlai-Gail 1994; Hektner 1996; Rathunde 1996). We used measures of students' gender, ethnicity, and socioeconomic status as indicated by the highest level of education attained by either parent. A composite measure of self-esteem was constructed from an abridged version of the Rosenberg (1965) self-esteem scale that contained seven items, each on a 4-point scale. A measure of optimism toward the future was constructed by taking the mean of questionnaire items indicating how powerful and confident respondents felt when thinking about the future on a 5-point scale. Measures of family challenge and family support were constructed using items and procedures developed by Kevin Rathunde (see Csikszentmihalyi et al. 1993; Rathunde 1996). Each measure was constructed by summing affirmative answers to 12 statements indicating positive challenge (or support), and then subtracting the sum of four negative challenge (or support) items. Our measure of school support averaged adolescents' responses to five survey items indicating the degree to which they felt cared for and supported by students and teachers at their school, each on a 5-point scale. Peers' value of education was constructed using responses to four questions in which adolescents were asked to indicate the importance of attending classes regularly, studying, getting good grades, and finishing high school to the friends with whom they regularly hang out. A measure of peers' value of cooperative activities was constructed using items in which participants rated the importance of engaging in extracurricular, service, or youth group activities to their friends.

Situational Factors

Situational factors included both external (contextual) and internal (perceptual) dimensions of experience as measured by the ESM. A series of dummy variables

[1] Interview studies suggest that perceived alteration of time is also characteristic of flow, but it is difficult to assess this element with ESM.

[2] By definition, instances of flow simultaneously pull together frequently uncorrelated aspects of experience (e.g., concentration and enjoyment); therefore, we would not necessarily expect this measure to yield a high level of reliability.

was constructed to represent the external dimensions of adolescents' experience. The following variables were created to represent the day and time:[3] weekday, school hours (Monday–Friday, 8 a.m.–3:30 p.m.); weekday, after school (Monday–Friday, 3:30 p.m.–6:30 p.m.); evenings (Monday–Saturday, 6:30 p.m.–10:30 p.m.); Saturday daytime (Saturday, 7:30 a.m.–6:30 p.m.); and Sundays (Sunday, all day and evening). To explore how teens' physical location may impact their experience of flow, all ESM reports of their locations were recoded into five categories: home, academic classes (e.g., math class, English class), nonacademic classes (e.g., art, computer science, etc.), school grounds (other nonclass school locations), and public places. Because one's activities are not always apparent from their physical location, we constructed indicators of adolescents' activities by recoding the hundreds, of activities adolescents reported into six general categories: school work, paid work, active leisure, passive leisure, maintenance activities, and other. Active leisure included activities like sports and hobbies, while passive leisure included activities such as watching television. Maintenance referred to chores and errands, as well as personal care and grooming (e.g., brushing one's hair, etc.). These categories are consistent with those used in previous ESM studies of adolescents (e.g., Csikszentmihalyi and Larson 1984). While there is considerable overlap between the time of day, location, and activity variables, they do represent qualitatively distinct contextual dimensions. For example, there are many times during school hours (even when students are in academic classes) when adolescents report activities other than schoolwork. Likewise, a considerable amount of schoolwork happens after school hours and outside of class.

Each time participants responded to the ESM, they indicated who they were with at the time of the signal. For the purpose of our analyses, these responses were coded into five mutually exclusive categories:[4] alone, with peers only (friends and classmates), with adults only (parents, teachers, coaches), with peers and adults together, and other (other-aged relatives as well as strangers or persons of unspecified relationship to the participant).

We constructed measures of five internal dimensions of experience based on characteristic descriptions of flow experiences. A measure of autonomy was derived from a single item asking participants to choose whether they were engaged in their present activity because they wanted to, they had to, or they had nothing else to do. Anytime participants indicated that they were doing an activity because they wanted to, the autonomy variable was given a value of 1; otherwise, it was given a value of 0. Following procedures used by Hektner (1996), we constructed a measure of the interaction of challenges and skills by taking the

[3] These particular day and time distinctions were made because they capture significant shifts in adolescents' physical location and activities and because exploratory analyses indicated corresponding shifts in students' experience of flow.

[4] Assessing the effects of companionship is difficult to achieve with a high degree of confidence because very often adolescents are with people who fall into a variety of different categories. For example, adolescents are very often in the same room as parents and friends. Thus, companionship distinctions are somewhat crude.

geometric mean (the square root of the product) of the challenge and skill items on the ESM. This newly constructed variable also ranged from 0 to 9, as did the challenge and skill Items, but was maximized when challenge and skill are both high and in balance. This variable was labeled challenge* skill to symbolize the challenge-skill interaction, The success variable refers to a respondent's answer on a 9-point scale to the question, "Were you succeeding at what you were doing at the time of the signal?" A measure of focus was constructed using adolescents' responses to open-ended questions about what they were doing and what they were thinking about. If responses to these two questions were similar (e.g., the subject was doing math homework and also thinking about math), the focus variable was given a value of 1. If there was a discrepancy between one's actions and thoughts (e.g., doing math homework and thinking about one's girlfriend), the variable was given a value of 0. The importance variable simply represents participants' rating of the importance of the activity on a 9-point scale.

Analytic Approach

Analyses of ESM data can be complex due to the nested levels of data resulting from repeated measures (i.e., beeps) nested within each individual. To analyze the data, we used a series of two-level hierarchical linear models (Raudenbush and Bryk 2002). HLM is ideal for analyzing repeated measures of participants, solving the unit-of-analysis problem that can occur, estimating appropriate standard errors, and appropriately weighting units by the reliability of the information they provide.

The main-objectives of these analyses were to identify individual, perceptual, and contextual factors associated with the experience of flow. The effects of individual factors were modeled as between-persons (or level 2) effects. The effects of context (external dimensions of experience) and perception (internal dimensions of experience) were modeled as within-participant (or Level 1) effects. In order to demonstrate the utility of multilevel models in analyzing a broad spectrum of possible influences on flow, our analyses were more exploratory and demonstrative than characterized by specific hypothesis testing; such analyses would ordinarily give rise to more specific hypothesis testing in subsequent studies.

When used with ESM data, multilevel modeling techniques allow researchers to examine the interaction between person and context, and capture in a very rudimentary way some of the dynamic quality of human experience. This analytical technique can be used to identify the independent contributions and interactions of situational and personal factors to the experience of flow. Thus we may determine that, in general, certain activities or situations are more likely to produce flow, and that some situations may be more salient for certain types of individuals than others. However, HLM lack's the capacity to capture the truly dynamic nature of ESM data by meaningfully representing a given individual's fluctuations in

experience over time. For techniques specifically designed to model such fluctuations and other dynamic systems, see Chaps. 26 and 29 on dynamic systems-modeling techniques.

Results

Analysis of Variability in Flow

The first analysis was a simple analysis of variance with random effects at Levels 1 and 2, otherwise known as the fully unconditional model. Results show that the maximum likelihood estimate for the grand mean of flow is 6,34 with a standard error of 05. This indicates a 95 % confidence interval of $6.34 \pm 1.96(0.05) =$ (6.25, 6.43). The variance component at Level 1 (beep level) is 2.71 (77 %); and the variance component at Level 2 (person level) is 0.82 (23 %). This indicates that approximately three quarters of the variation in flow was due to fluctuations experienced by the same person as he or she experienced life throughout the week; approximately a quarter of the variation was attributable to mean differences in flow among participants. The significance test at Level 2 ($\div^2 = 2{,}788.81$, $p < 0.001$) indicates that there is statistically significant variation among persons.[5]

Mean Differences in Flow by Person-Level Characteristics

In separate exploratory HLM analyses, person-level means or intercepts in flow were outcomes predicted by a single person-level variable *(means as outcome* models). A wide range of person-level variables were considered as predictors, including background characteristics, psychological factors, family factors, school factors, and peer factors. These independent analyses revealed that individual variation in flow was predicted by a variety of person-level factors, including gender (with girls experiencing greater flow than boys), and race or ethnicity (with African Americans experiencing greater flow than Caucasians). Positive associations with flow were also found for self-esteem, optimism about the future, family challenge, family support, school support, peer valuing of education, and peer valuing of cooperative activities. In these analyses, parental education, grade level of the adolescent (10th vs. 12th), teen's GPA, and educational aspirations did not exert any significant effect on flow.

[5] A further implication of this analysis is that it specifies the total amount of variation to be explained at both levels. The variance component in subsequent models with predictors indicates the *residual variance,* or variance left unexplained.

Table 20.1 Fixed and random effects of person variables on the mean of flow as outcome in a two-level HLM model

Fixed effect	Coefficient	SE	T-ratio
Flow intercept, γ_{00}	6.16	0.08	78.75***
Female, γ_{01}	0.34	0.10	3.43**
Asian, γ_{02}	−0.31	0.20	−1.51
Latino, γ_{03}	−0.30	0.16	−1.88
Black, γ_{04}	0.16	0.14	1.11
Self-esteem, γ_{05}	0.50	0.11	4.54***
Optimism, γ_{06}	0.14	0.04	3.35**
Family challenge, γ_{07}	0.03	0.02	1.20
Family support, γ_{08}	0.00	0.02	−0.02
School support, γ_{09}	0.28	0.11	2.48*
Peers value education, γ_{010}	0.16	0.13	1.21
Peers value cooperative activities, γ_{011}	0.09	0.12	0.78
Random effect	**Variance component**		**Chi-square**
Flow intercept, μ_0	0.61		2,157.82***
Level one variance, R	2.71		

*$p < 0.05$
**$p < 0.01$
***$p < 0.001$

In order to more fully understand the relationships identified in these independent analyses, an inclusive model was tested to determine which associations would persist while accounting for the effects of the Others.[6] Fixed and random effects for this model are presented in Table 20.1. Not surprisingly, the magnitude of the fixed effects identified in independent analyses is substantially reduced when multiple person-level factors are taken into account. After controlling on other person-level factors, females still reported significantly higher levels of flow than males. Adolescents with higher levels of self-esteem and greater optimism about the future also experienced more flow in their daily lives. Associations with race or ethnicity and peer values did not remain statistically significant. Though challenge and support in the family are no longer associated with flow once other factors have been taken into account, the positive effect of school support on flow remains. The Level 2 residual variance component or random effect of the flow intercept for this model was 0.61, a 26 % reduction invariance from the fully unconditional model. This indicates that approximately 26 % of the variance in mean flow between participants was accounted for by the variables in the model (as suggested in Raudenbush and Bryk 2002).[7]

[6] Correlations between all independent variables in the model were low enough to suggest that multicolinearity was not a problem. Hence, all variables were included in the model.

[7] While Raudenbush and Bryk (2002) demonstrated "variance explained" as the reduction in residual variance after including predictors compared to a fully unconditional model, we wish to acknowledge that several experts have offered alternative formulas to compute variance explained (e.g., Hox 2002; Snijders and Bosker 1999).

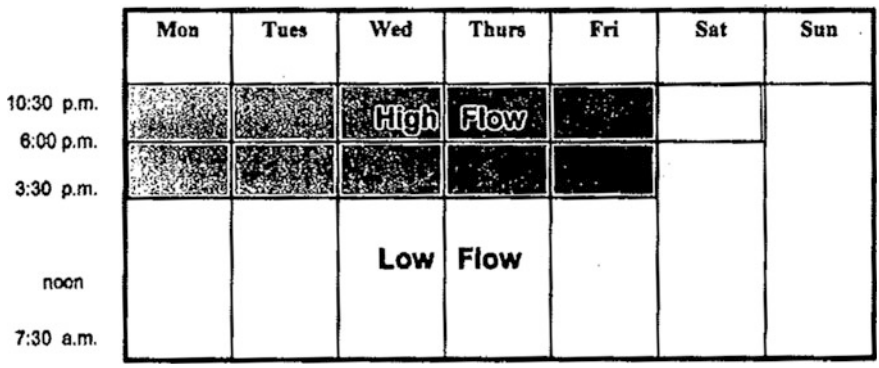

Fig. 20.1 Reported flow by day and time

Having identified some relevant person-level characteristics, our remaining models attempt to explain the within-person variation in terms of contextual and perceptual factors, exploring the external and internal dimensions of experience.

External Dimensions of Experience

Time and Day

We next examined whether adolescents felt greater levels of flow at certain times of day or on certain days of the week using the five time blocks described previously. Adolescents reported the highest levels of flow during the evenings ($\gamma = 0.25$, $p < 0.001$), and during after-school hours on weekdays ($\gamma = 0.15$, $p < 0.05$). School hours during the week were associated with the lowest levels of flow ($\gamma = -0.11$, ns). Participants reported somewhat higher flow on weekends than during school hours (with slightly higher flow on Saturday than Sunday), but the difference was not statistically significant. Figure 20.1 illustrates the times students were more likely to report relatively high flow versus low flow. The time and day explain little of the within-person variation in flow (2 %).[8]

[8] No random effects are significant with the exception of the slope for school hours on weekdays ($u_1 = 0.31$, $p < 0.05$). This indicates that while the effect of flow does not generally vary among participants at particular times of day, there is significant between-person variation during school hours.

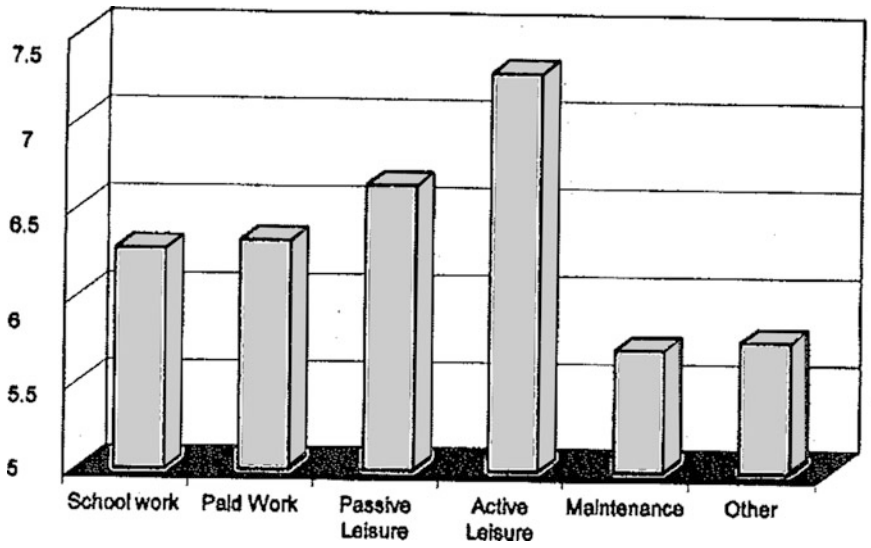

Fig. 20.2 Reported level of flow by activity type

Activities

Analyses of six activity categories revealed that adolescents' experience of flow varied systematically by activity, as illustrated in Fig. 20.2. Compared to the default category of passive leisure activities, significantly lower levels of flow were reported while engaged in maintenance activities ($\gamma = -0.89$, $p < 0.00$ l), schoolwork ($\gamma = -0.37$, $p < 0.001$), paid work ($\gamma = -0.32$, $p < 0.05$), and other activity types ($\gamma = -0.86$, $p < 0.001$). Relative to passive leisure, participants reported significantly higher levels of flow during active leisure activities ($\gamma = 0.65$, $p < 0.001$). The reduction in the Level 1 variance component of 17 % indicates that these activity categories account for some of the within-person variation in flow. Examination of the random effects revealed that, while there was no significant variation among students in their level of flow during schoolwork, there was significant between-persons variation in flow with respect to all other activities.

Location

When we examined variation in flow by location, we found that adolescents experience lower levels of flow in academic classes relative to all other location categories with the exception of the workplace. The highest levels of flow were reported when adolescents were in public ($\gamma = 0.47$, $p < 0.001$) and in nonacademic classes ($\gamma = 0.43$, $p < 0.001$). This latter result suggests that students

actually experience their lowest and highest levels of flow while at school, depending on whether the classes are academic or nonacademic. Compared to academic classes, participants also reported greater flow at home ($\gamma = 0.29$, $p < 0.001$) and while on school grounds but not in classes ($\gamma = 0.23$, $p < 0.01$), Flow was least likely to occur when teenagers were at work ($\gamma = –0.25$, ns). Modeling location categories produces a 7 % reduction in within-person variation in flow, suggesting that simply knowing where a person is physically is not a particularly meaningful predictor of flow experiences,

Companionship

Our final analysis of external dimensions of experience examined the relationship between flow and companionship. Adolescents reported, the highest levels of flow when with peers only ($\gamma = 0.11$, ns), Relative to the default category *other,* significantly lower levels of flow were reported when adolescents were with adults only ($\gamma = -0.22$, $p < 0.05$), with peers and adults ($\gamma = -0.20$, $p < 0.01$), and when alone ($\gamma = -0.14$, $p < 0.05$). Companionship accounted for approximately 6 % of the variance in flow. Random effects showed that the effect of all categories significantly varied among students with the exception of being exclusively with adults.

The external dimensions of experience explain some, though certainly not most, of the variation in an individuals' flow experiences. However, external dimensions represent only a part of subjective experience; one's perceptions of the conditions surrounding an activity or situation may also be quite salient. It is to these internal dimensions of experience that we now turn.

Internal Dimensions of Experience

We next tested the effects on flow of the five conditions for flow specified by flow theory.[9] Fixed and random effects of the internal dimensions of experience are presented in Table 20.2. Each of the five factors examined had strong, positive associations with flow even when the effects of other factors were controlled. Autonomy is a strong predictor of flow; when teenagers felt that they were doing a particular activity because they wanted to, they experienced greater levels of flow than when they "had to" or "had nothing else to do." Consistent with Sow theory, when challenges and skills were higher and in balance, the experience of flow was more intense. Participants also experienced higher flow when engaged in activities

[9] Correlations between all independent variables in the model were low enough to suggest that colinearity was not a problem. Hence, all variables were included in the model.

Table 20.2 Fixed and random effects of a two-level HLM model: internal dimensions of experience as predictors of flow

Fixed effect	Coefficient	SE	T-ratio
Flow intercept, γ_{00}	6.34	0.05	121.99***
Challenge * skill slope, γ_{20}	0.17	0.01	15.31***
Success slope, γ_{30}	0.23	0.01	21.47***
Focus slope, γ_{40}	0.31	0.04	8.32***
Autonomy slope, γ_{50}	1.18	0.04	31.29***
Importance slope, γ_{60}	0.18	0.01	17.30***
Random effect	Variance component		Chi-square
Flow intercept, μ_0	0.90		4427.95***
Challenge * skill slope, μ_1	0.01		450.96***
Success slope, μ_2	0.01		490.09***
Focus slope, μ_3	0.06		348.27
Autonomy slope, μ_4	0.13		416.56***
Importance slope, μ_5	0.02		532.36***
Level-1 variance, R	1.49		

*$p < 0.05$
**p < 0.01
***$p < 0.001$

they deemed important. The perception that one was succeeding at the activity at hand was also predictive of greater flow experiences. Finally, situations in which attention was focused by a convergence of thought and action produced greater flow on average than when thoughts and actions diverged. Together, these internal dimensions of experience reduce the within-person residual variation in flow by 45 %. The random effects of the coefficients in the model indicated that the average effect of all internal dimensions of experience significantly varied among participants with the exception of focus.

A Comprehensive Model: Multilevel Influences on the Experience of Flow

We conclude our analyses by constructing a comprehensive model combining person-level and contextual variables. Because there is substantial overlap between the external dimensions of experience we have explored, it was not possible to develop a single analytical model to simultaneously estimate the effects of time, day, location, activity, and companionship. We therefore constructed a comprehensive model which appeared to have the greatest predictive power based On the previous analyses, while excluding significant overlap among predictors.

To predict the flow intercept, we included in the model each of the person-level factors significantly predicting mean flow in our means-as-outcomes model

(Table 20.1). With respect to random coefficients representing external dimensions of experience, we included each of the activity categories and a dummy variable indicating whether participants were alone or with others at the time of the signal. We also included each of the internal dimensions of experience due to their strong predictive power.[10] We also attempted to predict some of the Level 1 coefficients that were modeled as random with person-level factors. To simplify, we tested only whether basic demographic factors such as gender, ethnicity, and parental education significantly mediated the random effects included in the model.

Results are presented in Table 20.3. Gender, optimism, and self-esteem remain significant predictors of mean differences in flow after accounting for other variables, while school support does not. The effect of activity type on the experience of flow also persists. One unexpected caveat derived from the comprehensive model is that the effect of active leisure activities on flow is further mediated by ethnicity. On average, African American participants reported higher levels of flow during active leisure than those from other races or ethnicities (though all participants on average reported greater flow during active leisure than other activities). The negative effect of being alone on flow was also significant in the comprehensive model.

Positive associations persisted between flow and all five internal dimensions of experience in the comprehensive model. The positive effect for success was shown to be greater for females than males, though both genders reported greater flow when perceived success was high. Taken as a whole, all fixed effects tested remained significant even when accounting for the others in the model. The results suggest that both internal and external dimensions of experience exert independent influence on flow.

An examination of the variance components reveals that the model accounted for approximately 40 % of the variation in variance in mean flow among persons, Note that this is greater than the amount accounted for in the means-as-outcomes model (Table 20.1) alone, in which the same person-level variables accounted for approximately 26 % of the Level 2 variance. This is likely due to the additional predictive power of the average effects of the Level 1 coefficients in the model. In other words, the average effect of autonomy, success, and other internal dimensions of experience on flow among participants accounted for additional variation in mean flow. The model accounted for 50 % of the Level 1 variation in flow within persons. In addition, significant variation among participants remained in the effects of paid work, active leisure activities, autonomy, the interaction of challenge and skill, importance, and success. Even when variation in such effects was significantly predicted with person-level factors, as with active leisure and success, the residual variation among persons remained significant.

[10] To avoid over specification of the model, some coefficients were modeled as fixed (not varying among participants) rather than random. We fixed variables for which random variation among participants had no meaningful interpretation (e.g., maintenance or other activities), as well those shown not to vary among participants in previous analyses (e.g., schoolwork, focus).

Table 20.3 Fixed and random effects of a comprehensive two-level HLM model

Fixed effect	Coefficient	SE	T-ratio
Flow intercept, γ_{00}	6.57	0.07	95.99***
Female, γ_{01}	0.26	0.08	3.20**
Optimism, γ_{02}	0.15	0.04	4.04***
Esteem, γ_{03}	0.49	0.09	5.74**
School support, γ_{03}	0.16	0.09	1.78
Autonomy slope, γ_{10}	0.99	0.04	26.00***
Challenge * skill slope, γ_{20}	0.16	0.01	13.79***
Importance slope, γ_{30}	0.20	0.01	20.43***
Success slope, γ_{40}	0.21	0.02	12.68***
Female, γ_{41}	0.05	0.02	2.38*
Focus slope, γ_{50}	0.27	0.03	8.00***
Maintenance activity slope, γ_{60}	−0.73	0.05	−16.01***
Schoolwork slope, γ_{70}	−0.42	0.04	−9.34***
Paid work slope, γ_{80}	−0.54	0.10	−5.39***
Active leisure slope,	0.16	0.06	2.69**
Asian, γ_{91}	−0.14	0.17	−0.86
Latino, γ_{92}	−0.11	0.18	−0.62
African American, γ_{93}	0.36	0.15	2.36*
Other activity slope, γ_{100}	−0.69	0.05	−15.00***
Alone slope, γ_{110}	−0.15	0.04	−4.12***
Random effect	**Variance component**		**Chi-square**
Flow intercept, μ_0	0.49		454.28***
Autonomy slope, μ_1	0.10		107.42*
Challenge * skill slope, μ_2	0.01		111.06*
Importance slope, μ_3	0.01		127.92**
Succeed slope, μ_4	0.01		112.09*
Paid work slope, μ_8	0.37		113.77*
Active leisure slope, μ_9	0.10		124.09**
Alone slope, μ_{11}	0.07		96.06
Level-1 variance, R	1.36		

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Discussion

The analyses presented in this chapter suggest several things about the nature of flow. We begin with some general trends indicated by the analyses, and then move on to more specific implications for practice, research, and theory. Analyzing the data using a multilevel approach reveals that there is substantial variation in flow experiences both within persons and across persons. These findings support the interactional nature of the flow model, highlighting the importance of considering the Interplay between person and environment.

Quantitative research on flow has focused almost exclusively on situational factors, examining the internal and, less commonly, the external dimensions of subjective experience. The use of HLM with ESM data allows researchers to test whether the effects of certain features of one's environment (one's location or activity, for example) have differential effects on the experience of flow for different people (e.g., males vs. females). In this way, the analyses can demonstrate the mediating effect of certain person-level factors on the relationship between environmental factors and flow.

Adolescents' experiences within the contexts of family, peers, and school also influence the degree to which they feel flow. Embedded in these contexts, their perceptions of the nature of activities in which they engage exerts a strong influence on the amount of flow experienced.

Our comprehensive model (Table 20.3) suggests not only that there arc measurable contextual and perceptual factors related to the experience of flow, but also that person-level characteristics may enhance or diminish the effects of these factors. For example, not only is the experience of flow on average greater for females than for males, but the positive impact of perceived success on flow is also greater for females. The factors contributing to the flow experience are complex and are best understood through the use of methods that enable exploration of factors operating and interacting at multiple levels.

Perhaps as notable as the personal factors that were significantly associated with flow were those that were not. We found little evidence that the experience of flow is related to one's socioeconomic status (as indicated by parent education), academic achievement, age, or professional or educational aspirations for the future. This suggests that the capacity to experience flow is not available only to those with affluence, intelligence, and ambition, but rather is accessible to individuals from a variety of backgrounds.

While there is substantial variation in flow at both the person and situational levels, our analyses indicate greater variation within persons than among persons; approximately three quarters of the total variation in flow occurs within persons. Taken as a whole, features of one's situated experience—one's activities, mood, company, and perceptions—may influence one's level of flow to a greater degree than personal characteristics; at the very least, there is more variation to explain at this situational level. But when we attempted to account for this variation ourselves, we found that internal dimensions of experience explain much greater variation in flow than do external dimensions of experience. The experience of flow was not strongly related to the day or time and was only minimally associated with one's physical location or companionship. Among the external dimensions of experience, activity explained the most variance in flow. Leisure activities, and active leisure activities in particular, produced the highest levels of flow. By contrast, the level of flow one experiences seems to depend a great deal on subjective elements of experience such as the perception of autonomy, the match of challenges and skills, success, importance, and focus in relation to daily activities.

Implications for Practice

The results of our investigation have several practical applications for human development and education. Before considering these applications, we must reiterate that the analyses we have presented are exploratory and are intended to demonstrate the use of the ESM and HLM methodologies to deepen our understanding of flow. Before firm recommendations for practice can be made, these findings need to be replicated under conditions in which specific hypotheses are being tested. With this qualification in mind, we offer this tentative discussion of possible suggestions from findings.

Young women appear to experience more flow than young men. We did not anticipate this finding and at present can offer few sound explanations for this result. We only note that it is consistent with a series of studies finding females to be more engaged than males at the elementary and high school levels (e.g., Finn and Cox 1992; Marks 2000). An interesting caveat in our study is that the positive effect of success on flow is also greater for females than it is for males. This suggests the possibility that the quality of experience for adolescent girls may be more dependent on feedback and perceptions of competence than it is for boys. Therefore, it might be advisable to provide young females with opportunities to engage activities with clear goals and criteria for success, where they would be most likely to earn positive feedback. Since the perception of success generally enhances the experience of flow for both genders, we wish to make clear that males would benefit from such conditions as well.

Our results suggest an important connection between optimal momentary experience and factors related to mental health and psychological well-being. Both global self-esteem and an optimistic orientation toward the future were associated with momentary levels of flow. Because our analyses are correlational, it is impossible to discern the directionality of this relationship, however. Do adolescents who experience more flow become more optimistic and have more positive self-regard as a result? Do optimism and self-esteem make one more likely to experience flow? Is there a bidirectional relationship? Or are these relationships mediated by some third, confounding factor? Evidence from other studies suggests that the link between flow and mental health may not simply be spurious (Massimini et al. 1992). In fact, there is some clinical evidence that enhancing opportunities for flow improves overall mental health (Delle Fave and Massimini 1992; VanDer poel and Delespaul 1992). The clinical and therapeutic implications of flow remain an area ripe for future study.

Findings regarding the external dimensions of experience could have important implications for the promotion of flow among adolescents. Though companionship does not explain a lot of the variation in flow, the results indicate that adolescents experience more flow when with peers than with adults. We believe this result may be confounded with the experience of less flow while in school, and particularly in classrooms, where students are likely to report being in the presence of adults and classmates, but not necessarily peers or chosen friends. By contrast, adolescents

are more likely to be with peers during leisure activities, when flow is relatively high. While the effect of being with peers and adults is difficult to separate neatly, it was relatively clear that adolescents report greater flow when in the presence of others than when alone. During adolescence, the presence of others may provide a structure to experience that is necessary for flow. Other researchers (Csikszentmihalyi and Larson 1984) have similarly found that solitude generally produces negative states like worry and anxiety among adolescents. Providing opportunities for adolescents to interact in productive ways with peers and adults appears to make flow more likely. With the exception of a small percentage of talented youth (e.g., Csikszentmihalyi et al. 1993), only after adolescence may many individuals become increasingly able to structure their attention in order to experience flow while alone.

Adolescents report the greatest level of flow in the pursuit of active leisure. This finding is consistent with previous research (see Nakamura and Csikszentmihalyi 2002, for a review). It is in these types of activities that the conditions for flow are most salient: Often the task at hand is freely chosen and is well matched to an individual's skill, Furthermore, the goals of the activity tend to be well defined, and feedback in reaching these goals is clear. Thus, to promote flow it is strongly recommended to encourage adolescents to become involved in hobbies, exercise, extracurricular activities, and other active leisure activities rather than spending time in more passive free-time activities like watching television and hanging out. Active leisure activities providing the opportunity for initiative, as opposed to passive leisure, are more likely to occur in the context of organized, voluntary youth programs such as afterschool programs and organized sports (Eccles and Gootman 2002).

Troubling for the field of education is the finding that students rarely experience flow in school. Adolescents spend considerable amounts of time in school, and school is ideally a place where children and adolescents may identify interests and passions that will lead to meaningful and productive careers. The fact that so little flow occurs in school suggests that this potential is not being harnessed in formal educational settings. Previous ESM studies of high school classrooms have shown that students become particularly disengaged when learning is relatively passive, as during lecture and when watching TV; students become relatively more engaged when involved in individual or group activities (e.g., Shernoff, Csikszentmihalyi, Schneider, and Shemoff, 2003). Consistent with these studies, our results show that when students are in nonacademic classes, such as art, vocational education, and computer science, they experience some of the highest levels of flow. It is interesting to reflect on the fact that one of the most flow-enriched settings— nonacademic classes—exists in the same setting and occurs among the same students as one of the most flow-impoverished settings—academic classes. Nonacademic classes tend to employ more active instructional formats and thereby provide students greater autonomy, interest, and a better match of challenges for their skills. Our findings suggest that one hope for facilitating more flow in schools would be for academic classes to restructure activities in a way that allows more room for autonomy and interest. While such a

conversion may sound simple, our study suggests that multiple conditions are operating simultaneously when flow is experienced; no doubt application to the classroom is no exception to more fully understand flow, researchers and practitioners need to focus on the multiple conditions from which the flow experience may emerge.

Implications for Research Methodology

Several implications for methodology in flow and ESM research emerge from this study. First, it may be useful to distinguish between the experience of flow and conditions for flow when conceptualizing and operationalizing the measure of flow. This distinction, in turn, clarifies the potential relationship between flow as the dependent measure and the influences on flow as independent variables.

Most of the methodological implications stem from the use of multilevel models in the analysis of ESM data, which presents several advantages. Previous analytical approaches chose between analyzing data at either the beep (i.e., response) level or the person level. Studies at the beep level often utilized individually normed z scores, which has the effect of squeezing the individual variation out of the data. Studies at the person level aggregated data across individuals and, in the process, eliminated the rich within-person variation unique to ESM data. By partitioning the variance into within-persons and between-persons components, multilevel models allow researchers to understand effects that occur at both levels simultaneously, rendering both individually normed z scores and cross-subject aggregation unnecessary. Furthermore, multilevel models allow the investigator to examine how within-persons effects may vary randomly across participants, as well as to predict those random effects by individual-level factors.

There are several implications of using multilevel models for future studies of flow. This approach enables researchers to examine measures of the same construct at two levels of analysis. For example, an inventory measuring participants' overall frequency in flow as a Level 2 predictor could complement ESM measures of momentary flow. The inclusion of both momentary and person-level measures of other psychological factors, such as self-esteem, would also be possible in the same study. This would tease out momentary from individual influences on a given outcome. By using HLM in its three-level application, researchers can separate and examine school or community influences using ESM data of individuals who are nested within a number of schools or communities (as demonstrated in Shernoff 2001). Multilevel models also allow us to examine change over time when using longitudinal data (see Raudenbush and Bryk 2002), linking momentary experience to long-term developmental outcomes. Despite the variety of potential advantages of multilevel models, we wish to make clear that their use is far from a panacea for understanding many types of research questions. To obtain a deeper understanding of various psychological and social phenomena, or to validate results from

multiple sources, mixed methods including qualitative interviews or observations are no less important.

Theoretical Implications

Results of this study have several implications for flow theory. First, flow may be appropriately conceptualized as it is most frequently described: in terms of the subjective experience of deep concentration, enjoyment, interest, involvement, control, and distortion of time.[11] These dimensions may be appropriately separated from the conditions most likely to facilitate flow experiences, which may be further classified into both external and internal dimensions of experience. Our findings with respect to the internal dimensions largely validate flow theory as developed in the past several decades. That is, flow experiences are highly associated with the perception of autonomously chosen activities, high challenges well matched to skills, clear and important goals, feedback with respect to success of achieving goals, and undivided attention. The fact that these factors possess the greatest predictive power of those evaluated in this study lends support to the theory in its current state of development. Our study potentially builds on the theory as well, by suggesting that external dimensions of experience can also be important influences on flow experiences, including time and day, location, companionship, and, most notably, the particular type of activity in which one is engaged. Furthermore, there appear to be significant individual differences in the average experience of flow, as well as in the effects of both perceptual and contextual conditions on momentary experiences of it.

Limitations

Readers may bear in mind several limitations of the study. First, as in most ESM studies, it relied on self-report data, which is ideal for studying adolescents' subjective experience but vulnerable to problems with memory, hasty completion, exaggeration, and falsification. Second, some of the results may have been influenced by a response bias, particularly if those who responded were somehow different from those who did not. For example, the gender and ethnic differences may have been affected by the underrepresentation of males and Latinos in the sample. Further limitations already discussed relate to the exploratory and correlational nature of the study.

[11] We lacked a reliable measure for distortion of time in this study.

Implications for Positive Psychology

We hope that this study may make a modest theoretical and methodological contribution to the broader field of positive psychology. Flow experiences enhance the quality of life; therefore, understanding the conditions that maximize its likelihood may take us one step closer to understanding the pathways to a good life characterized by psychological well-being. Focusing on the factors that influence the development of the autotelic personality (or persons particularly adept at finding flow) remains an important field for future study, as evidenced by the fact that much of the person-level variation in flow has yet to be explained empirically. Nevertheless, the finding that roughly three quarters of the variation in flow within individuals is due to moving from one situation to another also suggests that considerable attention in the study of flow (and perhaps the study of the good life in general) be spent on understanding situational factors: those features of activities and settings embedded into the structure of experiences composing daily life. Finally, positive psychology has been understandably critiqued for identifying adult constructions of happiness and fulfillment while neglecting the developmental and contextual pathways for achieving them (e.g., Cowen and Kilmer 2002). Therefore, more studies striving for a full examination of conditions providing opportunities for increasing psychological health in childhood and adolescence are essential to developing a more unified vision of positive psychology.

Notes

1. Interview studies suggest that perceived alteration of time is also characteristic of flow, but it is difficult to assess this element with ESM.

2. By definition, instances of flow simultaneously pull together frequently uncorrelated aspects of experience (e.g., concentration and enjoyment); therefore, we would not necessarily expect this measure to yield a high level of reliability.

3. These particular day and time distinctions were made because they capture significant shifts in adolescents' physical location and activities and because exploratory analyses indicated corresponding shifts in students' experience of flow.

4. Assessing the effects of companionship is difficult to achieve with a high degree of confidence because very often adolescents are with people who fall into a variety of different categories. For example, adolescents are very often in the same room as parents and friends. Thus, companionship distinctions are somewhat crude.

5. A further implication of this analysis is that it specifies the total amount of variation to be explained at both levels. The variance component in subsequent models with predictors indicates the *residual variance,* or variance left unexplained.

6. Correlations between all independent variables in the model were low enough to suggest that multicolinearity was not a problem. Hence, all variables were included in the model.

7. While Raudenbush and Bryk (2002) demonstrated "variance explained" as the reduction in residual variance after including predictors compared to a fully unconditional model, we wish to acknowledge that several experts have offered alternative formulas to compute variance explained (e.g., Hox 2002; Snijders and Bosker 1999).

8. No random effects are significant with the exception of the slope for school hours on weekdays ($u_1 = 0.31$, $p < 0.05$). This indicates that while the effect of flow does not generally vary among participants at particular times of day, there is significant between-person variation during school hours.

9. Correlations between all independent variables in the model were low enough to suggest that colinearity was not a problem. Hence, all variables were included in the model.

10. To avoid overspecification of the model, some coefficients were modeled as fixed (not varying among participants) rather than random. We fixed variables for which random variation among participants had no meaningful interpretation (e.g., maintenance or other activities), as well those shown not to vary among participants in previous analyses (e.g., schoolwork, focus).

11. We lacked a reliable measure for distortion of time in this study.

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Chapter 21
A Longitudinal Study of the Self-Concepts and Experiential Components of Self-Worth and Affect Across Adolescence

Giovanni B. Moneta, Barbara Schneider and Mihaly Csikszentmihalyi

Classic theories depict adolescence as a period of emotional "storm and stress". Empirical evidence, mostly from cross-sectional studies, suggests that emotional development presents a mixture of continuity, swings, and resilience. We examined longitudinally the average grade trends in components of self-concept and experiential components of self-worth and affect across adolescence. We followed 1,165 6th through 12th graders for 4 years using a 3-wave, accelerated longitudinal design. Participants completed self-concept scales (global self-esteem and locus of control), and the Experience Sampling Method, which provided daily self- reports on self-worth (living up to one's own expectations, to the expectations of others, feeling successful, and feeling in control of the situation) and affect (feeling good about oneself and feeling happy). Multilevel modeling indicated that both self-esteem and locus of control grow linearly over time. Self-worth components of experience showed a concave-up trend bottoming around Grade 10, suggesting a pubertal swing and partial readjustment by the end of adolescence. Affect declined quadratically across adolescence. Compared to White students, less positive grade trends were found for Hispanics, Asian Americans, and adolescents from nontraditional families. A mixed pattern

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emerged for African Americans. Behind the stable growth of components of self-concept, adolescents experience a certain degree of discontinuity as to how they evaluate their capability to meet everyday life demands and their affect declines. The modifications in grade trends due to ethnicity and family structure call for studies on the possible influence exercised by family processes and school environments.

Almost a century ago, Hall (1904) introduced a view of adolescence as a period of "storm and stress" characterized by three key features: mood disruptions, conflicts with parents, and risk behaviors. Although these emotional and behavioral responses can occur at any point in a person's life, Hall believed that they are far more common among adolescents and are largely endogenous, determined by biological factors associated with pubertal development. However, Hall recognized that the extent to which adolescents produce the storm-and-stress pattern depends on their temperament and the culture in which they live. He claimed that adolescence was less disruptive in cultures characterized by conservative traditions, and identified urbanization as the key factor. In his view, urbanization implies greater temptations to vice and reduced opportunities for physical activity and exploration, which he regarded as an inherent and biological need of adolescents. Thus, he claimed that many of the problems of adolescence were produced by the social inability to understand its nature and risks and to adapt the social institutions accordingly.

In the following decades, classic theories of personality development have contributed to the understanding of the emotional disruptions of adolescence. Freud (1910) stated that the emotional turmoil of adolescence stems from the awakening of the sexual instinct. Adolescence corresponds to the genital psychosexual developmental stage that follows the latency stage. The latency stage is a long and seemingly quiet period during which the libido expresses itself only indirectly through playing, schooling, and socializing, and the child loses all curiosity and interest in sex. By contrast, the genital stage is the period in which the sexual drive returns and transforms itself into a mature form, and adolescents face increasing societal demands to develop their intellectual and practical abilities. Thus, Freud explained the emotional disruptions of adolescence as the result of the conflict between instinctual strivings and reality demands. Within the psychoanalytic tradition, Freud (1946, 1958) argued that puberty implies abrupt increases of libidinal energy. At the same time, socialization leads to the development of a more demanding superego. These two simultaneous processes modify the power relation between psychological structures, reducing balance and stability, and increasing the intensity and frequency of emotional disruptions. She viewed this process as universal and argued that the absence of emotional disruptions during adolescence reflects excessive defenses and is therefore pathological.

Ego psychologists departed from Freud's theory by reducing the importance attributed to the sexual instinct and attributing greater importance to the pleasure derived from mastering tasks, ego development, and social influence. Within Erikson's (1968) paradigm, adolescence encompasses two psychosocial crises: industry versus inferiority and identity versus role confusion. The onset of the first

crisis coincides with schooling age, and the crisis ends during puberty. The onset of the second crisis coincides with the midpoint of adolescence, and the crisis may continue through young adulthood. Thus, Erikson explained the emotional disruptions of adolescence as the result of two strivings: (a) developing competence and proving it to oneself and others, and (b) developing a sense of identity that satisfies one's need to be unique while obtaining social acceptance and recognition. Research by Marcia (1966, 1980) has proven that not all adolescents experience an identity crisis. Some have not thought of identity issues and have not charted directions in life, and thus remain in a state of identity diffusion. Others have chosen an identity suggested by significant others without constructing it by raising questions and seeking answers, and they are thus in a state of foreclosure. These findings suggest that the emotional disruptions of adolescence that may arise from an identity crisis are more likely among adolescents than adults, but are neither universal nor necessary.

The theories of Hall, Freud, and Erikson have profoundly influenced empirical research on adolescence in the past decades. In a review of the literature on the storm and stress of adolescence, Arnett (1999) concluded that the collected evidence supports the existence of all the hallmarks of adolescence: mood disruptions, conflicts with parents, and risk behaviors. However, not all adolescents experience this triad, and there are large individual differences in the extent to which adolescents experience each of the three components. From the cultural point of view, he argued that storm and stress are lower or even absent in traditional cultures that promote a *narrow socialization*—that is, that impose a narrower range on the development of individual differences and put lesser emphasis on individualism (Arnett 1995). He also suggested that storm and stress may be reduced within the North American minority cultures. Thus, Arnett proposed a modified storm-and-stress view that allows for wide individual and cultural differences, wherein the key cultural component is not urbanization but breadth of socialization and emphasis on individualism.

This study focuses on the issue of the emotional disruptions of adolescence. A large body of research has tried to answer the basic question of whether emotions are less stable in adolescence than in other periods of life. Emotions have been assessed by paper-and-pencil, one-point-in-time measures and by paper-and-pencil, time-contingent sampling measures of experience in daily life (Wheeler and Reis 1991) such as the Experience Sampling Method (ESM; Csikszentmihalyi and Larson 1987; Csikszentmihalyi et al. 1977). Whereas the first group of techniques is designed to measure relatively stable, person-specific emotional tendencies, the second group of techniques is designed to assess the moment-to-moment, situation-to-situation variations in activity and experience, making it possible to investigate the development of adolescents' interactions with their environment.

Research conducted by either type of technique has provided inconsistent evidence on how stable emotions are across adolescence. Some findings suggest that emotions are as stable (or unstable) during adolescence as they are during the course of adult life (Block 1971; Davis and Franzoi 1991; Rutter et al. 1976; Steinberg 1990). Other findings suggest that adolescence features far greater

swings of emotions (Larson et al. 1980) and decreasing trends from early to late adolescence (Csikszentmihalyi and Larson 1984; Larson and Lampman-Petraitis 1989). Thus, the dilemma concerning the emotional disruptions of adolescence is still unsolved.

There are two possible reasons for this stalemate. First, most studies conducted to date are cross-sectional (e.g., Csikszentmihalyi and Larson 1984; Larson and Lampman-Petraitis 1989) and thus are potentially influenced by cohort effects. If the storm and stress of adolescence is modified by unknown societal changes, then cross-sectional comparisons between adolescents of different age groups are confounded by the unknown variables. From this perspective, the issue of stability can be studied best as an issue of individual change within a longitudinal study. Second, the two types of measures (traditional and experiential) have rarely been used together on the same study population, and thus, differences between the dispositional and experiential realities of emotions could not be compared. It is likely that dispositional measures imply more cognitive processing, comparative judgments, and rationalizations than experiential, in situ measures that are collected on a hourly basis. If that is the case, the two sets of measures could produce different answers to the research question. From this perspective, the issue of stability can be studied best using a multimethod approach.

An interesting longitudinal study (Larson et al. 1996) investigated the average age trend of the experience of affect during familial interactions in a large sample of adolescents from White, middle-class families. Daily affect was operationalized as the mean of three experiential variables: feeling happy–unhappy, cheerful–irritable, and friendly–angry. The analysis focused only on those observations that were collected while the adolescents were interacting with their families. Findings indicated that the sample mean of affect with family decreases from early adolescence and increases by late adolescence, returning to virtually the same level. This concave-up age trend was more marked and lasted longer for girls. Based on the analysis of the content of familial interactions (e.g., talking vs. being in the same environment with no communication), the authors interpreted this swing in affect as the result of a process of disengagement from family and transformation of family relationships toward a more egalitarian model. The emerging pattern disconfirms the common belief that adolescence is a period of sharp conflicts with family, and suggests that adolescence is a phase of progressive transformations rather than crises.

This study builds on Larson et al. (1996) approach to investigate the presence or absence of the storm and stress of adolescence in a large, representative sample of U.S. teenagers followed longitudinally for 4 years. We envision the research problem as a study of continuity versus discontinuity of development—that is, as constancy (or lack of constancy) of group means across age (e.g., McCall 1977; Moss and Susman 1980). We investigate average age trends in two dispositional variables, assessed by one-point-in-time surveys, and six experiential variables, assessed by the ESM. The dispositional variables are basic components of the self-concept: global self-esteem (Coopersmith 1967; Rosenberg 1979) and locus of control (Rotter 1966). Four experiential variables measure self-worth in daily

activities: living up to one's own expectations, living up to the expectations of others, feeling successful, and feeling in control. The remaining two experiential variables measure affect in daily activities: feeling good about oneself and feeling happy. These variables are selected to cover a wide range of adolescents' self-perceptions that may reflect the presence, absence, and intensity of storm and stress.

For each of these variables, we model the average developmental trajectory starting from early adolescence (approximately age 12) and ending with late adolescence (approximately age 18), Evidence in favor of or against the storm-and-stress view is evaluated for each variable separately by examining whether the mean developmental trajectory reveals continuity or discontinuity: Discontinuity supports the presence of storm and stress, and continuity disconfirms it. We consider two basic patterns of continuity: lack of change and progressive linear change. The first pattern is the absolute continuity; the second implies a smooth buildup of self-perceptions. We consider two basic patterns of discontinuity: a concave-up trend with a minimum within adolescence, and a concave-up trend with an estimated minimum projected beyond adolescence. The first pattern is a swing leading to partial or total recovery by late adolescence; the second implies an accelerated decrease with no recovery.

This study has two goals. The first goal is to provide a comprehensive description of continuity and discontinuity across adolescence. Based on this set of analyses, we aim to clarify two complementary issues: (a) whether the development of self-concept, experiential self-worth, and affect variables is continuous (and thus inconsistent with the storm-and-stress view) or discontinuous (and thus consistent with the storm-and-stress view), and (b) whether the several dispositional and experiential variables provide a consistent pattern (i.e., they all exhibit either continuity or discontinuity) or a diversified, more complex pattern (i.e., some exhibit continuity and others discontinuity).

Based on previous theoretical and empirical research, we formulate the following hypotheses. The ego psychologists (Block 1993; Block and Block 1980; Funder and Block 1989; Loevinger 1976, 1985, 1993; White 1959, 1960, 1963) highlight the child's or adolescent's natural tendency to develop a firm sense of self, the ability to cope with stress, the ability to delay gratification for achieving distal goals, and the ability to establish and deepen relationships. Although the nomological network is complex, measures of the ego appear to be related to measures of self-esteem and locus of control. For example, Deci and Ryan (1985a, b) found that ego development (Loevinger 1976) correlates positively with the autonomy causality orientation, representing a person's tendency toward self-determination, and negatively with the impersonal causality orientation, representing a person's lack of motivational structures supporting either self-determined or controlled behavior. In turn, the autonomy orientation correlates positively with self-esteem, whereas the impersonal orientation correlates negatively with self-esteem and positively with external locus of control. This body of research leads us to believe that the two investigated components of the self-concept (global self-esteem and locus of control) are related to ego development, and thus should

exhibit substantial continuity across adolescence. On the other hand, Larson et al. (1996) findings on the daily experience of affect lead us to believe that feeling happy and good should be discontinuous, exhibiting a swing with a low in mid-adolescence and possibly a recovery afterward. Concerning the experiential variables measuring self-worth (feeling successful, in control, and living up to one's and others' expectations), we cannot commit ourselves to specific hypotheses. Although one might expect these variables to be related to global self-esteem and locus of control, these relations do not guarantee that their developmental trajectories are similar.

The second goal is to shed light on whether the mean developmental trajectories in self-concept, experiential self-worth, and affect variables are modified by gender, ethnicity, and family structure. Based on this second group of analyses, we aim to clarify whether adolescents from disadvantaged groups show natural resilience and ability to recover from swings in self-perception by the end of adolescence.

This second part of the analysis is largely exploratory. Numerous cross-sectional studies have made comparisons by gender and ethnic group, and provided somewhat complex evidence indicating that women and minority groups have lower self-esteem and a more external locus of control (e.g., Gaa and Shores 1979; Hughes and Demo 1989; Kling et al. 1999; Wylie 1979). Yet, no study has performed longitudinal comparisons of average developmental trajectories. Furthermore, with some exceptions (e.g., Asakawa and Csikszentmihalyi 1998), previous studies of daily subjective experience have not focused on differences between the North American cultural majority and minorities.

Methods

Participants

Participants were the 1,309 members of the Alfred P. Sloan Study of Youth and Social Development who were followed longitudinally for 4 years. Participants were recruited following a nationwide random sampling scheme. The gender distribution of the sample was 586 (44.8 %) boys and 723 (55.2 %) girls. The ethnic distribution was 720 (55.0 %) Whites, 205 (15.6 %) Hispanics, 288 (22.0 %) African Americans, 82 (6.3 %) Asian Americans, 12 (0.9 %) Native Americans, and 2 participants of unknown ethnicity.

Data collection proceeded in three waves (1992–1993, 1994–1995, and 1996–1997) according to an accelerated longitudinal study design. The starting sample comprised 1,109 middle school and high school students from Grades 6, 8, 10, and 12, corresponding approximately to ages 12, 14, 16, and 18 years. Additional participants were recruited in the second and third waves. A total of 171 (13.1 %) participants completed all three data collection waves, 374 (28.5 %) completed two waves, and 764 (58.3 %) completed only one wave. The grade distribution by wave is shown in Table 21.1.

Table 21.1 Participants' grade distribution by data collection waves

Data collection wave	Grade in school						
	6	7	8	9	10	11	12
1st (1992–1993)	303	–	312	–	262	–	232
2nd (1994–1995)	–	–	215	–	190	–	187
3rd (1996–1997)	–	–	–	–	162	–	164

Note Distributions refer to 1,309 participants; 171 contributed to all three waves of data collection, 374 to two, and 764 to one. No data collection occurred when students were in 7th, 9th, or 11th grades

Measures

In each wave of data collection, participants were administered the Teenage Life Questionnaire (TLQ; Csikszentmihalyi and Schneider 2000) and the ESM (see Csikszentmihalyi and Larson 1987, and Csikszentmihalyi et al. 1977, regarding construction of the ESM). The adolescents' quality of daily experience was studied using the ESM. Each participant was given a programmable wristwatch and a block of identical response forms to carry for 7 consecutive days. The wristwatch was programmed to signal eight times a day at random intervals from 7:30 a.m. to 10:30 p.m. Participants were instructed to complete a response form immediately after each signal. The form contained open-ended questions for identifying the activity and its context, and scaled items for measuring a wide range of feelings associated with the activity.

In this study we employed three sets of questions from the TLQ: (a) questions concerning family composition and structure, (b) a global self-esteem scale, and (c) a locus of control scale. Participant's family structure was evaluated based only on responses obtained during the first wave of data collection. The family structure distribution was 707 (53.8 %) from traditional families, 243 (18.8 %) from single-parent families, 175 (13.3 %) from reconstituted families, 42 (3.2 %) from other types of families, and 142 (10.8 %) of unknown family structure.

Global self-esteem was assessed by a 7-item abridged version of Rosenberg's (1979) Seif-Esteem Scale. Locus of control was assessed by a 6-item abridged version of Rotter's (1966) Locus of Control Scale. All items were rated on a 4-point scale ranging from 1 *(strongly disagree)* to 4 *(strongly agree).* Scores for each participant were computed by averaging the respective items. In cases of nonresponse, the individual score was computed over the available items. High values mean high self-esteem and internal locus of control, respectively.

Six scaled variables from the ESM were used. Four variables measured time-contingent self-worth: Were you living up to your own expectations, Were you living up to expectations of others, Were you succeeding at what you were doing, and Did you feel in control of the situation. The remaining two variables measured time-contingent affect: Did you feel good about yourself, and the semantic

differential scale sad–happy. The Sad–Happy scale was scored from 1 to 7; the other five variables were scored from 1 to 9, with 1 being the most negative and 9 the most positive value.

Selections, Data Structures, and Missing Data

To avoid potentially confounding factors, several participants had to be removed from the analysis. We excluded all participants of unknown family structure and the 2 participants of unknown ethnicity, resulting in a sample size of 1,165.

The total number of data points available for the analysis is the sum of all repeated observations performed on each participant in the sample. The dispositional variables are one-point-in-time measures, whereas the experiential variables are repeated measures. Participants have up to three repeated measures of the dispositional variables over follow-up (i.e., one per data collection wave), and up to 168 experiential measures (i.e., 56 per data collection wave). Thus, the number of data points for the experiential variables greatly exceeded that for the dispositional variables. After elimination of missing data, the number of data points was 1,612 for global self-esteem, 1,577 for locus of control, 44,393 for living up to one's own expectations, 44,622 for living up to the expectations of others, 44,193 for feeling successful, 44,654 for feeling in control, 44,725 for feeling good, and 43,183 for feeling happy.

Stability of the Variables

In all preliminary analyses conducted for evaluating the temporal stability of the variables and their interrelations, we proceeded by aggregating the data at the individual level. For each participant and wave of data collection, we computed individual means of repeated ESM measures—that is, the average value of each scale over the entire week of the ESM, we then utilized these individual means as if they were one-point-in-time test scores. After aggregation, the number of data points was 2,012 for living up to one's own expectations, 2,013 for living up to the expectations of others, 2,006 for feeling successful, 2,014 for feeling in control, 2,016 for feeling good, and 1,996 for feeling happy.

We investigated the longitudinal stability of the variables by estimating their respective test–retest correlation coefficients over waves of data collection. Table 21.2 shows the correlation coefficients relative to all three possible comparisons. In general, the variables show a fair stability over adolescence, indicating that the relative ranking of the individuals within the sample remains much the same over time. The dispositional variables are the most stable, followed by the experiential variable feeling good about oneself. The least stable variable is feeling happy, which shows poor correlation coefficients from the first and second wave to

Table 21.2 Two-and 4-year test–retest correlation coefficients estimated by comparing the same measures across the three waves of data collection

	Comparisons of waves of data collection		
	1st versus 2nd	2nd versus 3rd	1st versus 3rd
Time lag (Years)	2	2	4
Range of *n*	455–193	189–199	187–194
Global self-esteem[a]	0.63	0.65	0.64
Locus of control (E–I)[a]	0.62	0.59	0.51
Living up to your own expectations[b]	0.51	0.48	0.38
Living up to the expectations of others[b]	0.50	0.55	0.49
Feeling successful[b]	0.54	0.53	0.48
Feeling in control[b]	0.43	0.42	0.34
Feeling good[b]	0.60	0.50	0.51
Sad–happy[b]	0.55	0.21	0.22

Note Correlation coefficients were computed after pairwise elimination of missing data. E–I = External–Internal

[a] Correlation coefficients refer to individual test scores

[b] Correlation coefficients refer to individual means of repeated experience sampling method scores

the last one. This finding suggests that, compared to the other variables, daily happiness inadolescence is less of a personal tendency and more of an environmental factor.

Relations Between Variables

The eight dispositional and experiential variables had fair reciprocal correlations across waves of data collection. Focusing on the first wave only, for example, the correlation between global self-esteem and locus of control (External–Internal) was 0.55, The highest correlation between the two dispositional variables and the six experiential variables was the one involving global self-esteem and feeling good about oneself (0.46); the other correlations ranged from 0.20 to 0.31. The experiential variables correlated with each other in the range from 0.17 to 0.60.

We then examined more deeply the relations among the eight variables by conducting separate principal component analyses, with varimax rotation, for each wave of data collection. The main criterion for selecting the number of factors was to include all factors with eigenvalues greater than 1. In addition, we evaluated the sensitivity of this criterion by inspecting scree plots and assessing the presence of scales showing double loadings. For each wave, we identified three factors. As shown in Table 21.3, the three-factor solutions are remarkably consistent across time. The first factor included the four experiential components of self-worth and thus was named experiential self-worth. The second factor included the two dispositional variables (locus of control and self-esteem) and thus was named

Table 21.3 Factor loadings of the measures of the self-concept, experiential self-worth, and affect for each wave of data collection

Measures	Data collection waves								
	1st (1992–1993) Factors			2nd (1994–1995) Factors			3rd (1996–1997) Factors		
	I	11	III	I	II	III	I	Π	III
Living up to your own expectations[a]	0.885	0.125	0.161	0.872	0.172	0.200	0.827	0.179	0.189
Living up to the expectations of others[a]	0.842	0.135	−0.078	0.828	0.121	−0.061	0.806	0.163	−0.176
Feeling successful[a]	0.736	0.073	0.262	0.780	0.122	0.130	0.692	0.113	0.227
Feeling in control[a]	0.689	0.086	0.366	0.776	0.126	0.310	0.625	0.028	0.532
Locus of control (E–l)[b]	0.137	0.899	−0.027	0.179	0.898	−0.049	−180	0.901	0.058
Global self-esteem[b]	0.112	0.812	0.329	0.142	0.844	0.295	0.144	0.848	0.284
Sad–happy[a]	0.112	0.010	0.877	0.085	0.069	0.919	−0.067	0.190	0.806
Feeling good[a]	0.540	0.254	0.622	0.558	0.256	0.629	0.427	0.168	0.763
Explained variance	74.2 %			77.2 %			73.0 %		
Number of participants	836			448			269		

Note Factors were extracted by the method of principal components, subjected to varimax rotation, and named as experiential self-worth (1), self-concept (II), and affect (III). E–I = External–Internal

[a] The analysis of these variables was performed on individual means of repeated experience sampling method scores

[b] The analysis of these variables was performed on individual test scores

self-concept. The third factor included feeling happy and feeling good about oneself and thus was named affect. Feeling good about oneself had a second loading on the experiential self-worth factor; thus, this salient judgment seems to involve both the evaluation of how well one is doing and the affective response to that evaluation.

Statistical Methods

Mathematical Modeling of Grade Trends

To investigate average grade trends in the eight selected dispositional and experiential variables, we utilized one basic mathematical model:

$$\text{Dependent variable} = \beta_0 + \beta_1 \,\text{grade (linear)} + \beta_2 \,\text{grade (quadratic)}$$

where β_0 is the grand mean (i.e., the mean expected value of the dependent variable when grade is equal to zero);grade (linear) is a numerical variable representing student's grade at the time the dependent variable was assessed, and β_1 is its mean effect on the dependent variable; grade (quadratic) is the same numerical variable raised to the second power, and β_2 is its mean effect on the dependent variable. All mean regression coefficients β_0 through β_2 have to be estimated based on the data, and may turn out to be either significantly different from or equal to zero. This simple model can adequately describe linear growth or decrease, curvilinear growth or decrease, or absence of both. For example, the hypothesis that global self-esteem grows linearly as a function of grade corresponds to the case $\beta_1 > 0$ and $\beta_2 = 0$. The hypothesis that self-esteem has a concave-up relation with grade corresponds to the case $\beta_1 < 0$ and $\beta_2 > 0$. Whether the concave-up trend ends with total, partial, or no recovery can be determined by simple computations based on the point estimates of the regression coefficients, or by plotting the predicted values over grade.

The hypothesis that adolescence implies continuity is compatible with either (a) the absence of an average linear or nonlinear grade trend, corresponding to absence of change; or (b) a positive average linear grade trend, corresponding to a smooth and progressive buildup throughout adolescence. The hypothesis that adolescence implies discontinuity is compatible with three average grade trends: (a) a negative linear trend, corresponding to a smooth and progressive decrease throughout adolescence; (b) a concave-up trend indicating an accelerated decrease throughout adolescence (if the estimated minimum falls beyond Grade 12); and (c) a concave-up trend indicating a swing (if the estimated minimum falls in the 6th- to 12th-grade range) with the minimum representing a critical point of adolescence. Furthermore, concave-down trends, although unlikely, would also suggest discontinuity indicating a boosting effect (e.g., a pubertal one). We conducted the hypothesis testing on each dependent variable separately to allow us to assess the

continuity and discontinuity separately for each dispositional and experiential variable.

The same mathematical model was extended to account for possible modifications of average grade trends due to gender, family structure, and ethnicity, by adding new predictors together with their interactions involving the grade terms. For example, gender modification was tested by adding the gender main effect and the interactions of gender with grade to the initial model, which resulted in the following model:

$$\begin{aligned} \textit{aligned}\text{Dependent variable} = {} & \beta_0 + \beta_1 \,\text{grade (linear)} + \beta_2 \,\text{grade (quadratic)} \\ & + \beta_3 \,\text{gender} + \beta_4 \,\text{gender} * \text{grade (linear)} + \beta_5 \,\text{gender} * \text{grade (quadratic)} \end{aligned}$$

where gender was coded as 0 for male and 1 for female. The introduction of the new terms modifies the meaning of the terms that were already included in the model. Within this model, males constitute the referent group and females the contrast group. The coefficients β_0, β_1, and β_2 represent the mean grade trend for adolescent boys. The coefficients β_3, β_4, and v_5 represent the mean deviation (i.e., algebraic difference) from the mean grade trend due to being female—that is, the mean difference in grade trend between adolescent girls and boys. Thus, assuming that all coefficients β_0 through β_5 are statistically significant, the interpretation of the grade trend and its modification due to gender can be easily worked out by using the regression equation to compute and plot the distinct developmental trajectories for male and female adolescents. The specific pattern of statistical significance involving the coefficients β_3 through β_5 determines the presence or absence, as well as complexity level, of the modification due to gender. Three main cases should be considered. If all coefficients β_3 through β_5 are nonsignificant, then there is no modification due to gender; that is, adolescent boys and girls have the same developmental trajectory. If β_3 is significantly different from zero and β_4 and β_5 are not, then the mean trajectory for adolescent girls is parallel to that of adolescent boys. If instead coefficients β_3 through β_5 are all significantly different from zero, then the mean trajectory for adolescent girls differs from, and is not parallel to, that for adolescent boys. All other intermediate cases can be interpreted easily by inspecting the graphs of predicted values of the dependent variable over grade.

It is important to point out that by introducing simultaneously main class effects and interactions with grade or gender, family structure, and ethnicity, one automatically identifies a global referent group. In all analyses, the referent groups for family structure and ethnicity were traditional and White, respectively; thus, the global referent group was a White adolescent boy from a traditional family. By fitting the full model, the terms β_0 through β_2 define the mean trend of the dependent variable for the global referent group, and all other terms define the mean deviation from that trend due to gender, family structure, and ethnicity. By removing terms from the full model, the referent group changes. Therefore, the correct interpretation of a final model, obtained after the elimination of nonsignificant terms, requires a careful identification of the referent group.

Multilevel Modeling

We estimated the coefficients of the mathematical model by multilevel modeling (Bryk and Raudenbush 1992; Goldstein 1987, 1995; Longford 1993). Multilevel models are particularly useful to control for the within-subjects correlation of repeated measures, as well as for the presence of missing data. These techniques are regression procedures for modeling data with hierarchical structures. In the case of repeated measures, the data structure typically has two levels: Individuals are modeled at Level 2, and the single observations performed on them are modeled at Level 1. The modeling proceeds by fitting separate regressions for each individual to obtain an average regression model valid for the entire population from which the individuals were sampled. The estimation procedure is iterative and at each step it provides improved estimates of both person-specific and population-average regression coefficients until convergence is achieved. The person-specific coefficients and the population-average coefficients are reciprocally adjusted. Multilevel models can handle unbalanced and incomplete streams of repeated measures because the lack of information in any given individual data distribution is counterbalanced by importing information from the population average model.

The multilevel modeling of grade trends conducted in this article represents an extension of previous applications to the longitudinal modeling of time trends in sleep disorders (Moneta et al. 1996) and grade trends in affect (Larson et al. 1996), For extensive presentations on how multilevel models can control for the structural complexity of the ESM data, see Moneta and Csikszentmihalyi (1996, 1999). In what follows, we focus on the specific characteristics of the application used here.

The multilevel models of the dispositional variables were fitted on the repeated test scores, and the multilevel models of the experiential variables were fitted on the much larger number of repeated, beep-level ESM measures. The number of repeated measures per participant is the main limiting factor in the number of random coefficients that can be estimated. Due to this structural difference of the data, the model for dispositional variables contained only one random coefficient, the intercept β_0, whereas (he model for experiential variables contained two random coefficients, the intercept β_0 and the slope β_1 of grade (linear).

For each dependent variable separately, we first fitted the basic model containing only the intercept and the linear and quadratic effects of grade. This model allowed testing for the presence or absence of a mean grade trend relative to all participants in the sample. We then fitted the full model containing, in addition to the predictors of the basic model, all potential modifiers in the form of main class effects and their interactions with the linear and quadratic effects of grade. Lastly, by backward elimination, we selected a final model. In the selection we followed the hierarchical principle that a lower order term cannot be removed if a higher order term containing it is significant. The criterion for excluding an effect was a significance level greater than 0.05. The significance level was evaluated by the

likelihood test. "We estimated the models by means of the program ML3 (Prosser et al. 1991).

The multilevel models were fitted on the full body of data, including participants from all three waves of data collection and all available repeated observations. Given that the study adopted an accelerated longitudinal design, this implies that the grade trends were estimated by pooling together complete longitudinal data (i.e., from all 171 participants who were assessed in all three waves), incomplete longitudinal data (i.e., from all participants who were assessed in two waves only), and cross-sectional data (i.e., from participants who were assessed in one wave only). Thus, the data set was structured in three cohorts (identified by the date of the first assessment) where each one of them was subject to attrition. This pooling procedure is open to two potential sources of bias: attrition effects and Grade × Cohort interaction effects (Cook and Campbell 1979).

Attrition effects are present if the probability of dropping out of the study is associated with the dependent variable and the predictors. We ruled out this possibility by fitting the final models on the restricted sample of participants with complete longitudinal data and finding no marked differences in the point estimates of the average regression coefficients. Thus, for this data set, the pooling procedure has the advantage of providing greater statistical power without introducing a noticeable bias.

Cohort effects are present if the three cohorts differ in unmeasured background variables that influence the grade trends. We assessed the presence and size of cohort effects by the method proposed by Raudenbush and others (Miyazaki and Raudenbush 1999; Raudenbush and Chan 1993). Two indicator variables were created for identifying each contrast between the first cohort (1992–1993) and the other two cohorts. These indicators were then included in the Level 2 model as fixed-effects predictors. For all eight dependent variables, the cohort indicators in the basic model (containing only the linear and quadratic grade effects) turned out to be nonsignificant. These results indicate that the cohort effects were either absent or minimal and, thus, that the average grade trends were virtually identical across cohorts. Consequently, we proceeded to the estimation of **all** the models without including the cohort parameters.

Results

Basic Test of Grade Trends

Table 21.4 shows the estimated average population coefficients and variance components, with standard errors, of the basic multilevel models used to test linear and quadratic grade trends of the self-concept, experiential self-worth, and affect variables.

Table 21.4 Multilevel models used for testing linear and quadratic grade trends of self-concept, experiential self-worth, and affect variables: estimated average population coefficients and variance components

Predictors	Dependent variables															
	S–E		L–C		EXPY		EXPO		SUCC		CONT		GOOD		HAPP	
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
Fixed effects																
Constant	2.807*	0.244	2.792*	0.021	7.632*	0.663	7.057*	0.702	7.626*	0.474	8.369*	0.610	9.623*	0.573	7.223*	0.308
Grade (Linear)	0.042	0.054	0.019*	0.006	−0.208	0.137	−0.280	0.145	−0.199*	0.100	−0.196	0.128	−0.388*	0.119	−0.336*	0.065
Grade (Quadratic)	−0.001	0.003	–	–	0.011*	0.001	0.016*	0.008	0.011*	0.005	0.008	0.007	0.015*	0.006	0.011*	0.003
Random effects																
Between-subject																
Constant	0.135*	0.012	0.109*	0.011	38.500*	2.619	42.230*	2.871	13.340*	1.050	25.600*	1.86S	27.340*	1.898	5.843*	0.448
Grade (Linear)	–	–	–	–	0.382*	0.027	0.426*	0.030	0.128*	0.011	0.261*	0.019	0.266*	0.019	0.055*	0.05
Constant, grade (Linear)	–	–	–	–	−3.677*	0.264	−4.0S4*	0.291	−1.233*	0.106	−2.480*	0.191	−2.566*	0.195	−0.543*	0.045
Within-subjects																
Constant	0.141*	−0.08	0.145*	0.009	5.008*	0.034	5.768*	0.039	3.9S0*	0.027	S.638*	0.038	3.994*	0.027	1.622*	0.011

Note refers to effects that were not included in the model and thus are assumed to be equal to zero, *S-E* global self-esteem, *L-C* locus of control (E–I), *EXPY* living up to one's own expectations, *EXPO* living up to the expectations of others, *SUCC* feeling successful, *CONT* feeling in control, *GOOD* feeling good, *HAPP* feeling happy

*$p < 0.05$

Both linear and quadratic grade terms for global self-esteem were nonsignificant; yet, when the quadratic effect of grade was removed, the linear trend became significantly positive ($\beta = 0.018$, $SE = 0.006$). The findings imply that, on average, global self-esteem grows linearly throughout adolescence. The estimation algorithm failed to converge for locus of control. Subsequent analyses performed by adding extra terms con-finned that the cause of the problem was that the estimate of the quadratic effect was close to zero. By removing the quadratic effect, the estimation algorithm converged and the linear grade term was significantly positive. Thus, there is a mean linear trend for locus of control to become more internal from the onset to the end of adolescence. In sum, both components of the seif-concept exhibit continuity in the form of a smooth, progressive buildup.

Both linear and quadratic grade terms were significant for three of the four experiential self-worth variables (living up to one's own expectations, to the expectations of others, and feeling successful). However, both grade terms were nonsignificant for feeling in control. Refitting the model by eliminating the quadratic term also resulted in a nonsignificant linear term. Thus, although there is no average grade trend in the feeling of control over the activity, the other experiential components of self-worth exhibit a swing during adolescence with a low around Grade 10. These findings indicate discontinuity of experiential self-worth except for the feeling of control, which exhibits continuity.

Both linear and quadratic grade terms for the two affect variables, feeling good and feeling happy, were significant, describing a concave-up trend with lows projected beyond adolescence. Thus, unlike experiential self-worth, affect appears to decrease across the whole span of adolescence. The decrease is faster in early adolescence and progressively slower afterward. The trajectory is not a swing, as adolescents' affect appears not to recover. These findings indicate discontinuity in daily affective experience.

Tests of Potential Modifiers of Grade Trends

Table 21.5 shows the estimated average population coefficients and variance components, with standard errors, of the final multilevel models used to test the possible modifications in the average grade trends of dispositional and experiential variables due to gender, family structure, and ethnicity.

The model of global self-esteem contains simple main class effects, implying parallel trends, and one set of interactions involving the Hispanics, implying nonparallel trends. The global referent group is White and Native American adolescent boys not from reconstituted families. The simple main class effects indicate that adolescent girls, adolescents from reconstituted families, and Asian Americans have consistently lower self-esteem across adolescence; African Americans have consistently higher self-esteem across adolescence. Figure 21.1 shows the predicted average grade trends relative to the interaction of ethnicity with grade. The developmental trajectories refer to boys not from reconstituted

Table 21.5 Final multilevel models of self-concept, experiential self-worth, and affect variables regressed on grade, gender, family structure, and ethnicity: average population coefficients and variance components

Predictors	Dependent variables															
	S-E		L-C		EXPY		EXPO		SUCC		CONT		GOOD		HAPP	
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
Fixed effects[a]																
Constant	3.143	0.259	2.860	0.062	6.917	0.067	8.154	0.756	8.810	0.537	9.4S4	0.763	9.536	0.609	7.154	0.308
Grade (Linear)	−0.016	0.057	0.019	0.006	–	–	−0.440	0.156	−0.403	0.113	−0.447	0.159	−0.325	0.122	−0.336	0.045
Grade (Quadratic)	0.002	0.003	–	–	–	–	0.024	0.008	0.021	0.006	0.021	0.008	0.012	0.007	0.011	0.003
Gender																
Gender	−0.138	0.030	–	–	–	–	–	–	–	–	–	–	−0.201	0.104	–	–
Gender × grade (Linear)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Gender × grade (Quadratic)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Family																
Single	–	–	−0.075	0.037	−0.289	0.135	−0.363	0.165	−4.006	1.215	−5.593	1.598	–	–	–	–
Reconstit	−0.082	0.042	−0.114	0.042	–	–	–5.05O	1.998	–	–	–3.420	1.771	–	–	0.165	0.068
Other	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Single × grade (Linear)	–	–	–	–	–	–	–	–	0.747	0.259	1.145	0.337	–	–	–	–
Reconstituted × grade (Linear)	–	–	–	–	–	–	1.1 O8	0.415	–	–	0.826	0.371	–	–	–	–
Other × grade (Linear)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Single × Grade (Quadratic)	–	–	–	–	–	–	–	–	–0.035	0.014	–0.058	0.018	–	–	–	–
Reconstituted × grade (Quadratic)	–	–	–	–	–	–	−0.059	0.022	–	–	−0.044	0.020	–	–	–	–
Other × grade (Quadratic)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethnicity																
Hispanic	−1.709	0.724	−0.143	0.042	−0.393	0.145	−0.866	0.181	−0.542	0.112	–	–	–	–	–	–
African American	0.183	0.040	–	–	–	–	−0.443	0.170	–	–	0.342	0.129	0.861	0.134	0.238	0.061
Asian American	−0.161	0.061	–	–	−1.150	0.219	−0.937	0.263	−4.725	2.035	6.872	2.595	4.572	2.420	–	–
Native American	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hispanic × grade (Linear)	0.368	0.163	–	–	–	–	–	–	–	–	–	–	–	–	–	–
African American × grade (Linear)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Asian American × grade (Linear)	–	–	–	–	–	–	–	–	0.875	0.420	−1.435	0.531	−1.175	0.489	–	–
Native American × Grade (Linear)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

(continued)

Table 21.5 (continued)

Predictors	Dependent variables															
	S-E		L-C		EXPY		EXPO		SUCC		CONT		GOOD		HAPP	
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
Hispanic × grade (Quadratic)	−0.019	0.009	–	–	–	–	–	–	–	–	–	–	–	–	–	–
African American × grade (Quadratic)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Asian American × grade (Quadratic)	–	–	–	–	–	–	–	–	−0.045	0.022	0.069	0.044	0.061	0.025	–	–
Native American × grade (Quadratic)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Random effects																
Between-subject																
Constant	0.127	0.011	0.109	.o11	3.183	0.142	41.500	2.836	13.070	1.02S	25.510	1.845	27.240	1.888	5.846	0.446
Grade (Linear)	–	–	–	–	–	–	0.418	0.030	0.128	0.011	0.260	0.020	0.264	0.019	0.055	0.005
Constant, grade (linear)	–	–	–	–	–	–	−3.986	0.287	−1.224	0.104	−2.477	0.188	−2.562	0.189	−0.545	0.045
Within-subjects																
Constant	0.138	0.008	0.145	0.009	5.439	0.037	5.768	0.039	3.979	0.027	5.635	0.038	3.994	0.027	1.622	0.011

Note refers to effects that were excluded from the model and thus are assumed to be equal to zero. *S-E* global self-esteem, *L-C* locus of control (I–E), *EXPY* living up to one's own expectations, *EXPO* living up to the expectations of others, *SUCC* feeling successful, *CONT* feeling in control, *GOOD* feeling good, *HAPP* feeling happy

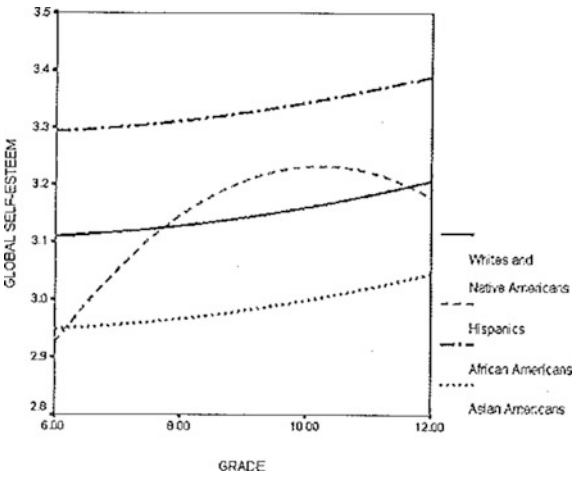


Fig. 21.1 Global self-esteem: predicted average grade trends for adolescents from different ethnic groups. The developmental trajectories refer to adolescent boys not from reconstituted families

families. Hispanics appear to have a disadvantaged entry to adolescence relative to African Americans and Whites, but not to Asian Americans, and they exhibit a spectacular recovery in global self-esteem; by Grade 10 they surpass Whites and Native Americans.

The model of locus of control contains only main class effects. The global referent group is not Hispanic and not from reconstituted or single-parent families. The main class effects indicate that Hispanics and adolescents from single-parent and reconstituted families consistently have a more external locus of control across adolescence.

The model of living up to one's own expectations contains only main class effects. The global referent class is Whites, African Americans, and Native Americans not from single-parent families. The introduction of new predictors made both the linear and quadratic grade terms nonsignificant. The model implies that perceptions of meeting one's own standards are constant across adolescence, and are consistently lower for adolescents from single-parent families and Hispanics across adolescence.

The model of living up to the expectations of others contains four simple main class effects and one set of interactions involving adolescents from reconstituted families. The global referent group is Whites and Native Americans from traditional and other families. The simple main class effects indicate that Hispanics, African Americans, Asian Americans, and adolescents from single-parent families have consistently lower perceptions of meeting environmental demands across adolescence. Figure 21.2 shows the predicted average grade trends relative to the interaction of family structure with grade. The developmental trajectories refer to Whites and Native Americans. The trends for adolescents from traditional, other, and single-parent families conform to a swing with a minimum achieved at about Grade 9. Comparatively, adolescents from single-parent families score remarkably lower across adolescence. On the other hand, adolescents from reconstituted

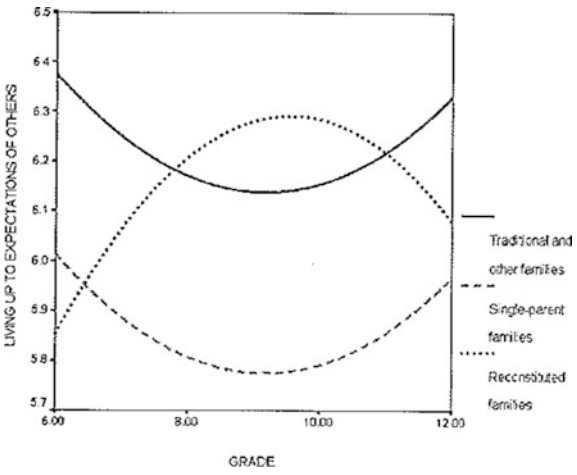


Fig. 21.2 Living up to the expectations of others: predicted average grade trends for adolescents from different family structures. The developmental trajectories refer to Whites and Native Americans

families enter adolescence as low as the adolescents from single-parent families and show a remarkable resilience that peaks at Grade 10.

The model of feeling successful contains one simple main class effect and two sets of interactions involving adolescents from single-parent families and Asian Americans. The global referent group is Whites, African Americans, and Native Americans not from single-parent families. The simple main class effect indicates that Hispanics feel consistently less successful across adolescence. Figure 21.3 shows the two sets of predicted average grade trends relative to the interactions of family structure and ethnicity with grade. In the graph describing the effects of family structure, the developmental trajectories refer to Whites, African Americans, and Native Americans. Adolescents from single-parent families have a disadvantaged entry to adolescence but they recover almost entirely by Grade 10. In the graph describing the effects of ethnicity, the developmental trajectories refer to adolescents not from single-parent families. Although it presents a boost at Grade 10, the trajectory for Asian Americans is remarkably lower.

The model of feeling in control contains one simple main class effect and three sets of interactions involving family structure and ethnicity. The global referent group is Whites, Hispanics, and Native Americans from traditional and other families. The simple main class effect indicates that African Americans feel consistently more in control of the activity. Figure 21.4 shows the two sets of predicted average grade trends relative to the interactions of family structure and ethnicity with grade. In the graph describing the family structure effects, the developmental trajectories refer to Whites, Hispanics, and Native Americans, Adolescents from traditional and other families exhibit a swing with a low at about Grade 10, followed by a marginal recovery. Adolescents from single-parent families have a disadvantaged entry to adolescence but recover almost entirely by Grade 10. Adolescents from reconstituted families enter adolescence at the same level as those from traditional families, keep growing up to about Grade 9, and then converge again with the adolescents from traditional families by the end of

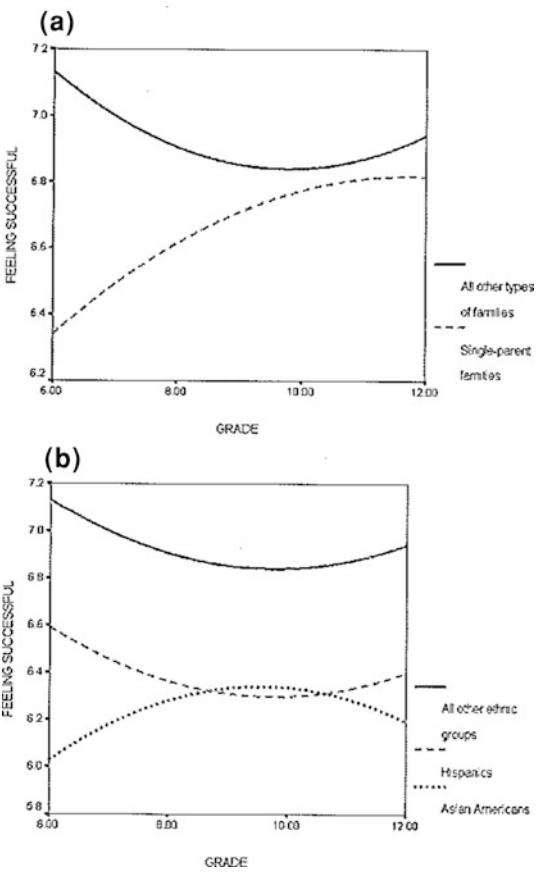
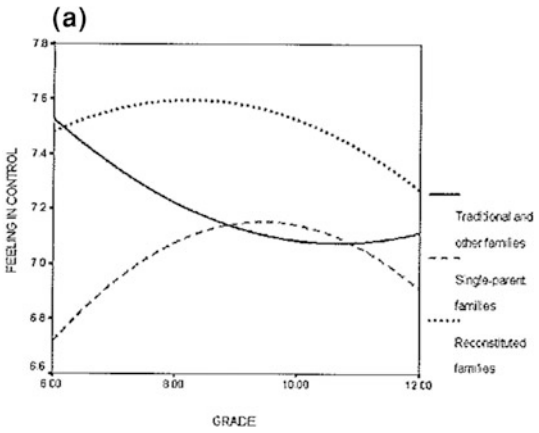


Fig. 21.3 Feeling successful: predicted average grade trends for adolescents from **a** different family structures and **b** different ethnic groups. The developmental trajectories refer to Whites, African Americans, and Native Americans in (**a**) and adolescents not from single-parent families in (**b**)

adolescence. In the graph describing ethnic effects, the developmental trajectories refer to adolescents from traditional or other families. For all ethnic groups the trajectory is concave-up, with a low at Grade 10, followed by a marginal recovery. Asian Americans enter adolescence with an advantage, decline sharply, and score remarkably lower by Grade 10.

The model of feeling good contains two simple main class effects and one set of interactions involving the Asian Americans. The global referent group is White and Native American adolescent boys. The simple main class effects indicate that adolescent girls feel consistently less good about themselves across adolescence, whereas African Americans score consistently higher. Figure 21.5 shows the predicted average grade trends relative to the interaction of ethnicity with grade. Developmental trajectories refer to adolescent boys. Asian Americans score significantly lower and have a more pronounced swing, bottoming at about Grade 10, followed by a marginal recovery.

The model of feeling happy contains only two simple main class effects. The global referent group is adolescents not from reconstituted families and not



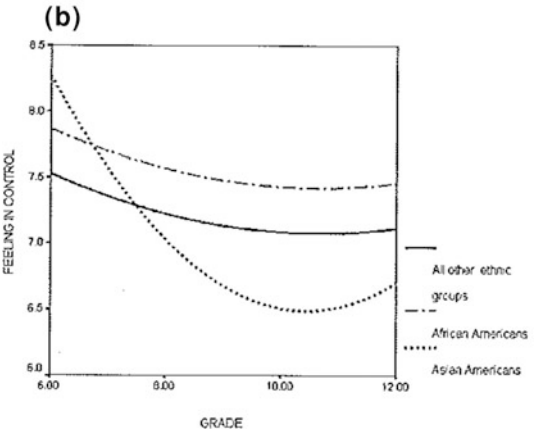


Fig. 21.4 Feeling in control: predicted average grade trends for adolescents from **a** different family structures and **b** different ethnic groups. The developmental trajectories refer to Whites, Hispanics, and Native Americans in (**a**) and adolescents from traditional or other families in (**b**)

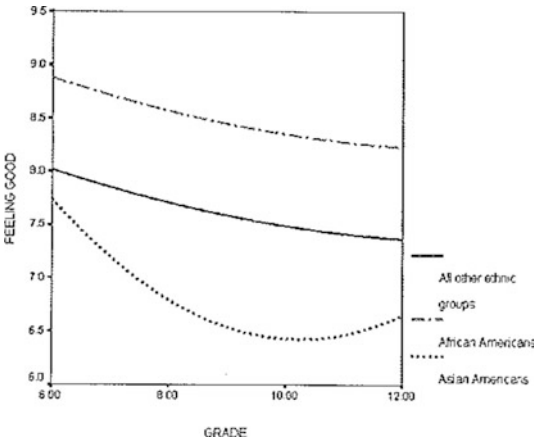


Fig. 21.5 Feeling good: predicted average grade trends for adolescents from different ethnic groups. Developmental trajectories refer to adolescent boys

African Americans. The simple main class effects indicate that adolescents from reconstituted families and African Americans feel consistently happier across adolescence.

Discussion

In this study, we conducted two sets of analyses. In the first set of analyses, we estimated the average developmental trajectory of self-concept, experiential self-worth, and affect across adolescence, and, for each variable separately, we identified whether its grade trend conforms to continuous versus discontinuous development. In the second set of analyses, for each variable separately, we examined whether its average developmental trajectory varies across gender, family structure, and ethnicity, and we identified groups of adolescents with disadvantaged grade trends.

The first set of analyses on the average developmental trajectories indicates that the adolescents' construction of the selected dispositional and experiential variables is diversified and complex. Whereas some variables conform to the hypothesis of continuity throughout adolescence, others conform to the hypothesis of discontinuity. The pattern of results, however, is homogenous within variables that belong to the same factors. The dispositional measures of global self-esteem and locus of control that contributed to the self-concept factor conform to a linear, cumulative trend across adolescence, indicating stable growth and thus continuity throughout adolescence. Experiential variables that contributed to the experiential self-worth factor generally conform to a concave-up trend, declining from early adolescence up to age 15 or 16 and recovering partially afterward, indicating a swing in the perception of accomplishment relative to internalized and social standards, which conforms to the hypothesis of discontinuity. Experiential variables that contributed to the affect factor conform to a concave-up trend that decreases throughout adolescence, indicating a steady decline from the comparatively high level of childhood, which conforms to the hypothesis of discontinuity.

The findings relative to the dispositional variables are consistent with the classic ego psychologists' view of development as a progressive buildup of ego structures and resources. Findings relative to the experiential self-worth variables are relatively new, as previous studies of age trends in experience investigated other, only partially related experiential components. The findings relative to the experiential affect variables are consistent with the observation that depressed mood is highly prevalent and visible during adolescence (Rutter 1986), but they are in partial disagreement with Larson et al. (1996) finding that affect during familial interactions recovers after middle adolescence because our analysis indicates no recovery. The difference in findings may be due to the fact that in this investigation we did not focus on possible differences of developmental trajectories across distinct contexts of action. Thus, it is possible that, although the

aggregate level of affect declines steadily, its trajectory in specific social contexts deviates from the overall trend.

The fact that self-concept, experiential self-worth, and affect follow quite different developmental trajectories has an important implication for assessments of adolescence. The determination of whether adolescence is more of a critical phase or more of a transformation phase heavily depends on which psychological phenomena we look at. If we focus on dispositional variables contributing to the self-concept, we infer that adolescents' development is, on average, continuous. If, instead, we focus on experiential measures of self-worth and affect in daily life, we infer that adolescents' development is on average discontinuous. Insofar as discontinuity supports the storm-and-stress view and continuity disconfirms it, we have a mixed pattern of findings: In terms of self-esteem and locus of control there is no evidence of storm and stress, but the overall behavior of the experiential variables indicates the existence of storm and stress. Yet, these conclusions only refer to the average trend. The multilevel models that we estimated pointed out individual differences that we did not have the space to discuss in this article. The presence of individual differences in grade trends implies that individuals may deviate from the average trend by exhibiting continuity for variables that are on average discontinuous, and vice versa. Thus, these findings are consistent with Arnett's (1999) modified storm-and-stress view.

The second set of analyses highlighted several group differences in developmental trajectories. The findings relative to the possible gender modification are ambiguous. Adolescent girls scored consistently lower in global self-esteem and feeling good across adolescence, yet their developmental trajectories in the other variables were no different from those of adolescent boys. Thus, the findings are consistent with evidence that adolescent girls have lower self-esteem (Kling et al. 1999), but only partially confirm that adolescent girls have more negative self-appraisal in general (Gove and Herb 1974), The fact that girls' disadvantage was limited in scope suggests that gender differences in developmental trajectories are the result more of social than biological determinants.

On the whole, adolescents from single-parent and reconstituted families had disadvantaged developmental trajectories compared to those of adolescents from traditional families. However, the pattern was not uniform, and these adolescents showed signs of resilience. Adolescents from single-parent families scored consistently more external in locus of control and lower in living up to one's own expectations, to the expectations of others, and feeling in control. Yet, they did not differ in global self-esteem and affect. Furthermore, although their scores on feeling successful were markedly lower in early adolescence, this difference vanished by middle adolescence. Being a child in a single-parent home involves a complex mixture of potential stressors such as traumatic events prior to parents' separation, financial difficulties, and social discrimination. The findings suggest that, although the effect of these stressors is visible, it does not extend to all components of self-concept, experiential self-worth, and affect.

Compared to adolescents from traditional families, adolescents from reconstituted families scored consistently lower in self-concept, equal in experiential self-

worth variables and feeling good, and higher in happiness. Thus, although these adolescents seem to pay a price in terms of personality development, their everyday self-worth and affect appear well adjusted. On the whole, this group of adolescents appear to fare better than adolescents from single-parent families. Possible explanations include greater distance in time from traumatic events associated with parents' separation, fewer financial difficulties, and less social discrimination.

On the whole, ethnicity appears to be an important modifier of developmental trajectories. Differences were detected for all ethnic groups but the Native Americans, who were too small a subsample to achieve statistical significance. Compared to Whites, African Americans scored consistently higher in global self-esteem, feeling in control, and affect, and consistently lower in living up to the expectations of others. There were no differences in locus of control, living up to one's own expectations, and feeling successful. These findings are consistent with previous cross-sectional studies showing that African Americans have self-esteem levels at least as high as those of Whites (Simmons 1978; Taylor and Walsh 1979), Furthermore, these findings confirm the concomitance of high self-esteem and low sense of personal efficacy in African Americans (Hughes and Demo 1989) in the form of high global self-esteem and low perception of meeting social standards. Several explanations have been advanced for this apparent paradox, such as the Black militance effect and the primary role of appraisal by significant others (Simmons 1980), or the hypothesis that institutional inequality affects personal efficacy and not judgments of self-worth (Hughes and Demo 1989), whatever the interpretation, this investigation extends the finding of the apparent paradox by indicating that it characterizes the entire developmental trajectory of African American adolescents.

Compared to Whites, Hispanics were consistently more external in locus of control and scored consistently lower in living up to one's own expectations, to the expectations of others, and feeling successful; there was no difference in the feeling of control and affect. Their global self-esteem was markedly lower in early adolescence and exhibited a complete resilience by middle adolescence. Gaa and Shores (1979) found that, compared to Whites, Hispanic college students are significantly more internal in locus of control when experiencing success in intellectual performance and significantly more external when facing social failure. The fact that in our analysis the Hispanics were more external in locus of control and lower in experiential self-worth suggests that the lives of these adolescents may be characterized by more salient social failures, less salient successful experiences in academic domains, or both.

Compared to Whites, the Asian Americans scored consistently lower in global self-esteem, living up to one's own expectations, to the expectations of others, feeling successful, and feeling good. Although they scored higher in early adolescence, their feeling of control over the activity decreased more rapidly and was markedly lower by middle adolescence. There were no differences in locus of control and feeling happy. These findings are difficult to evaluate because Asian Americans have not been studied systematically to date. Yet, cross-cultural studies

involving mostly Chinese adolescents and young adults have identified a self-effacing tendency that is often interpreted as a strategy for promoting group cohesion and social harmony (Yik et al. 1998). Self-effacement applies to several person perceptions, with the exception of agentic traits like assertiveness and openness to experience (Yik et al. 1998), and results in lower frequency of positive self-statements but not in higher frequency of negative self-statements (Ip and Bond 1995). Assuming that the Asian Americans tend to follow the same self-effacing pattern as the Chinese, the low values of self-esteem, feeling good, and experiential self-worth measures may be at least in part due to self-effacement. By the same token, the absence of differences in locus of control, a trait that is intrinsically agentic, may be due to the absence of self-effacement. However, this interpretation is at odds with the finding that Asian Americans report significantly more positive experiences than Whites while studying (Asakawa and Csikszentmihalyi 1998). Therefore, we cannot rule out the possibility that the overall lower levels of daily self-worth exhibited by the Asian Americans are indeed indicators of developmental difficulties. Yet, the implications of these cultural differences for psychological adjustment are not straightforward. In particular, as hypothesized by Ip and Bond (1995), Asian cultural systems offer greater social support, so that individuals may need lower levels of self-approbation to maintain mental health.

On the whole, the findings indicate that there are marked differences in the developmental trajectories of self-concept, experiential self-worth, and affect across ethnic groups and family structures. The findings also highlight that, although some groups have less positive developmental trajectories, their disadvantage is not uniform across different dispositional and experiential variables and is not in all cases permanent across adolescence. Therefore, the global pattern is far from being bleak, as all groups of disadvantaged adolescents exhibit resilience.

Three limitations of this investigation should be emphasized. First, our analysis of the experiential variables did not make any distinction between the different social contexts within which adolescents' experience develops. Consequently, we were unable to study the likely compensatory effects across social contexts. By comparing our results on daily affect with those of Larson et al. (1996), we suspect that the developmental trajectories may differ across social contexts. For example, whereas affect during familial interactions improves after the middle point of adolescence, affect may keep deteriorating in other contexts. Yet, our data allow the modeling of developmental trajectories within contexts. In a future investigation, we will focus on two different facets of resilience: adolescents' capacities to find new, more optimal contexts for action and to reinterpret and positively transform contexts for action that are no longer satisfactory.

Another limitation of this investigation concerns the focus on the issue of continuity and discontinuity—that is, modeling only average experiential trends. We have also provided evidence on the issue of stability and instability—that is, quantifying the extent to which the ranking of the individuals within the sample is constant over time. Yet, studies of daily experience have found that, compared to adults, adolescents have greater frequency of negative affect and higher frequency

of extremely positive affect (Larson et al. 1980; Larson and Richards 1994), This finding suggests that development involves increasing capacity to control and regulate negative emotions coupled with a reduced capacity to experience peaks of positive emotions. If this trade-off forms during adolescence, then the within-subjects variance of emotions should become narrower with age. Yet, having modeled only average trends, we could only study the end result of the underlying emotional trade-offs. This type of modeling is the most natural in the presence of bipolar scales. Yet, in a future investigation, we will disentangle positive and negative sides of the scales and construct separate models for positive and negative self-perceptions to see whether the identified grade trends are mostly due to an increase in the rate of negative self-perceptions or to a decrease in the rate of extremely positive self-perceptions.

Finally, the observed differences in developmental trajectories across family structures and ethnic groups originated from an exploratory analysis, as we could not find any general theory to draw specific predictions. Thus, the existence of the differences that we detected in this study has to be confirmed with different samples, perhaps using different statistical methods. If confirmed, however, these differences call for a comprehensive explanation. The task requires an investigation of the potential roles played by family, peers, and scholastic environments. Ideally, this line of research will lead us to identify the factors behind family structure and ethnicity, possibly to the point of explaining totally the effects of family structure and ethnicity in terms of more specific underlying determinants.

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Chapter 22
Motivation and Academic Achievement: The Effects of Personality Traits and the Quality of Experience

Mihaly Csikszentmihalyi and Maria Mei-ha Wong

Despite increasing concern with how little American students seem to be learning in school, not much is known about the personality and motivational factors involved in academic performance. The literature deals almost exclusively with the cognitive dimensions of the problem—how to break down, present, and transmit information to students (U.S. Department of Education 1986). Yet it seems the problem is not that students cannot learn the material, but that they do not want to learn it. Motivational and affective obstacles, rather than cognitive ones, appear to be at the root of the educational deficits of our students (Csikszentmihalyi 1988, 1990a; Deci and Ryan 1985b; Dweck and Elliott 1983; Harter and Connell 1984; Lepper and Hodell 1989).

This situation is especially obvious among gifted and talented children. As Bloom (1985) has found, extraordinary motivation and support are needed to develop outstanding expertise. Studies on people of exceptional abilities have consistently shown that those with unusual accomplishments have a special

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fascination for and involvement with their own work (Barron 1969; Bloom and Sosniak 1981; Renzulli 1986, for a review). Renzulli (1986) called this characteristic "task commitment." Feldhusen (1986) and Haensly et al. (1986) have also affirmed the importance of motivation and commitment in their analyses of gifted people.

The view that motivation is indispensable for distinguished achievement is not new. In a longitudinal study of gifted people, Terman and Oden (1959) concluded that more successful gifted people differed from those who were less successful in certain personality and motivational characteristics. These included persistence in the accomplishment of ends, integration towards goals, and drive to achieve. Roe (1952) and MacKinnon (1965) also found that creative people had a high level of commitment, enthusiasm, and determination.

However, during the years of adolescence, a very large proportion of talented youth gives up the strenuous training required to acquire mastery in a field, and opts for an easier lifestyle (Csikszentmihalyi and Robinson 1986). There is no question that the task of developing cognitive abilities, or of potential in general, presents emotional and motivational hurdles. In a recent study of normal adolescents, for instance, studying and doing homework were associated with a low level of motivation and happiness (Csikszentmihalyi and Larson 1984).

Long-Term and Short-Term Rewards

In considering academic motivation, it is useful to identify two kinds of motivation: one based on the expectation of long-term rewards (e.g., fulfilling career expectations or psychological needs) and one based on the rewards of ongoing experience (e.g., enjoying the activity itself). The first type of motivation can be either extrinsic or intrinsic. If the long-term goals are autonomously chosen, their attainment would be intrinsically motivating (Deci and Ryan 1985a, 1987), yet the person may not necessarily enjoy the process of working toward these goals. The second type of motivation, based on immediate experience, always tends to be intrinsic, in that the rewards are inherent in the activity itself.

Rathunde (1989a, b) has argued that both long-term goals and momentary experience affect academic achievement. According to him, a high level of involvement in schoolwork and an awareness of the relationship between immediate experience and long-term goals would enhance academic performance.

Although both long-term and short-term rewards may be indispensable for outstanding achievement, it is not clear how they are related to one another. For example, in order to get good grades, a student must be willing to work hard and persist in spite of difficulties. This means certain other short-term goals (e.g., watching TV, going out with friends) cannot be fulfilled. Moreover, because long-term goals rarely provide immediate feedback, a successful student has to live with frustration, anxiety, and uncertainty. He or she may not enjoy schoolwork or feel happy while studying; as a result, the intensity of involvement may suffer and the quality of work may deteriorate. It will be hard for a person to keep on studying if

it brings absolutely no short-term rewards. However, if exclusive emphasis is put on immediate enjoyment, it may also be difficult to attain long-term goals. For instance, any temporary setback may disillusion a student and prevent further involvement with schoolwork.

Personality, Motivation, and Achievement

Achievement motivation is the most widely studied personality characteristic that is believed to affect academic outcomes. The pioneers of this field focused on the need to achieve (Atkinson 1957, 1964; Atkinson and Feather 1966; Heckhausen 1967; McClelland et al. 1953). Achievement motivation has been defined as an individual characteristic reflecting the tendency "to strive to do something difficult as well and as quickly as possible" (Murray 1938, p. 81); the capacity to experience pride in successes and shame in failures (Atkinson 1964); and the willingness to work hard to attain excellence (Jackson 1984). The construct was originally measured by the Thematic Apperception Test (TAT; McClelland et al. 1953) and later questionnaire measures (e.g., the Personality Research Form [PRF; Jackson 1967, 1984]). A positive relationship between scholastic performance and achievement motivation, as measured by questionnaires, was consistently reported in numerous studies (Demos and Weijola 1966; Fink1962; Gough 1964a, b, 1968; Gough and Fink 1964; Harper 1975; Keimowitz and Ansbacher 1960; Koenig and McKeachie 1959; Mason et al. 1966; Schneider and Green 1977). No major gender differences were reported.

However, the relationship between scholastic performance and the TAT measure of achievement motivation was more variable. Although some studies suggested that those who scored high on the TAT got better grades and selected relatively difficult fields of study (Atkinson and Litwin 1960; Kagan and Moss 1958; Raynor 1970; Veroff et al. 1960), many others reported insignificant relations between academic performance and achievement motivation [see Entwisle (1972) and Klinger (1966), for a review]. In several studies, the TAT measure of achievement motivation was positively related to scholastic performance for male respondents only (Crandall et al. 1962; Ratliff 1980; Shaw 1961; Stivers 1958).

McClelland (1980) suggested that operant measures like the TAT should be distinguished from respondent measures like personality tests. He argued that personality tests measure how much achievement is valued rather than achievement motivation. If one were to observe a significant relationship between academic performance and TAT measure of achievement, McClelland contended, it would be necessary to control for the probability of success or the level of risk in achievement situations. People with high need for achievement would only work hard if there is a moderate probability of success, not when the probability is either very high or very low.

Intrinsic motivation has been shown to have a positive impact on scholastic performance. The construct has been regarded as an attitude (Deci and Ryan 1985b; Lepper and Greene 1975; Lepper et al. 1973), a personality characteristic (Deci and Ryan 1985a, 1987), and an experiential variable (Csikszentmihalyi 1975, 1990b;

Csikszentmihalyi and Csikszentmihalyi 1988). Intrinsic motivation for specific subjects was positively correlated with achievement scores in the related content areas (Gottfried 1981). Students who reported that they did schoolwork for extrinsic reasons (e.g., to avoid disapproval) tended to score lower on the Stanford Achievement Test (Connell and Ryan 1985). When teachers were trained to promote intrinsic motivation in the classroom, the standardized achievement test scores of their students improved (DeCharms 1976). In other studies, intrinsic motivation was found to enhance conceptual learning (Grolnick and Ryan 1987) and recall of material learned (Ryan et al. 1984); extrinsic motivation impaired both. No important gender differences were reported in the above studies. In all but a few [e.g., Csikszentmihalyi (1975), Csikszentmihalyi and Csikszentmihalyi (1988)], intrinsic motivation was measured by questionnaires.

The above review leads to four observations. The first two involve theoretical issues while the last two pertain to methodological concerns. First, most studies focus solely on how a personality characteristic (e.g., achievement motivation) or an experiential construct (e.g., intrinsic motivation) affects scholastic achievement. Seldom do researchers consider them together. Although both appear to be positively related to scholastic achievement, it would be interesting to find out exactly what this relationship is and how it affects scholastic achievement. In the study described in this article, the relation between personality and experience and the relative effects on achievement were analyzed.

Second, few studies examine how scholastic performance is affected by personality characteristics other than achievement motivation and intrinsic motivation. Although achievement motivation has been widely studied, the effects of other personality characteristics (e.g., the ability to endure difficulty and to control one's impulses) on scholastic performance remain unclear. Intuitively, it seems reasonable to speculate that such a relationship exists and that it would have an impact on how achievement motivation affects scholastic performance. For instance, a person who is high on achievement motivation but low on impulse control and endurance is unlikely to succeed in school. Thus, it is important to consider several personality characteristics together. Many researchers have argued for the usefulness of "high-order traits," composed of different individual personality scales (Buss and Finn 1987; Costa and McCrae 1988; Goldberg 1982; John et al. 1984). Such traits can provide new insights as to how personality is related to everyday behavior, which may not otherwise be known by studying personality characteristics separately. In this article, we tried to identify a high-order trait that brings together personality characteristics that would facilitate productive work.

Third, intrinsic motivation is usually measured by one-time questionnaire items. Although such measures are certainly valid indicators of students' motivation for doing schoolwork, an instrument that allows the repeated measurement of motivation when students are actually studying might add valuable information. An example of such an instrument would be the Experience Sampling Method (ESM; Csikszentmihalyi and Larson 1987; Csikszentmihalyi et al. 1977; Larson and Csikszentmihalyi 1983). Subjects are asked to carry an electronic pager for a certain period of time (usually 1 week) and to answer questions about thoughts, activities,

and moods whenever they are signaled. An intriguing question is whether measures in natural settings are related to questionnaire measures at all. In fact, researchers have only begun to investigate questions of this sort (Diener et al. 1984; McAdams and Constantian 1983; Wong and Csikszentmihalyi 1991). By employing a well established personality questionnaire and the ESM, this study allows us to examine how questionnaire measures are related to measures in natural settings.

Fourth, when compared to research in achievement motivation and intrinsic motivation, very few studies have studied directly the relationship between ongoing experience and academic achievement. In the past, there was simply no easy way to measure the quality of experience in natural settings. It was not until the late 1970s that technology allowed the use of pager and electronic instruments to provide such measurement (Csikszentmihalyi and Larson 1987; Pervin 1985). In this study, the relation between experience while doing schoolwork and scholastic achievement was investigated.

Daily Experience and Academic Achievement

There are many ways to measure experience in natural settings (e.g., Pervin 1985). Here, we focus on the ESM. Research with the ESM indicates that studying and schoolwork in general are among adolescents' least rewarding activities. When in class or doing homework they report low intrinsic motivation and negative experience. They generally feel sad, passive, constrained, bored, detached, and lonely (Csikszentmihalyi and Larson 1984). Very similar experiential patterns are obtained in other cultures, such as Italy (Carli et al. 1988) and South Korea (Won 1989).

Against this generally negative background, it seems that students who are motivated while studying perform better academically. For example, past studies (Csikszentmihalyi and Larson 1984; Mayers 1978) found that high-school students who disagreed more with the statement ''Do you wish you had been doing something else?'' when being paged in a given class received better grades in those classes. They also got better grades in classes they enjoyed more than in classes they enjoyed less.

In a study of talented math students, Nakamura (1988) contrasted a group of high achievers with a group of low achievers. These two groups differed significantly in how much they enjoyed schoolwork and how anxious they felt while doing it. The high achievers enjoyed their schoolwork 40 % of the time, the low achievers only 15 % of the time. By contrast the low achievers were anxious 54 % of the time while doing schoolwork, while high achievers were anxious only 30 % of the time. Similarly, Larson (1988) found a relationship between the ability to enjoy one's work and performance. He showed that controlling for ability, high-school students who enjoyed the various steps of writing a ''junior theme" in English wrote essays that were rated higher by the faculty than students who were either anxious or bored while writing.

It seems clear that learning in school is not something young people find pleasant. However, as we described above, those who are able to enjoy their work

appear to perform better academically. The question this study raises is whether certain personality traits (e.g., achievement motivation, endurance) are related to the ability to derive short-term rewards from studying, and what their relative effects are on academic achievement.

The ESM measures personality characteristics by aggregating repeated self-reports over a week of paging. The assumption is that if, for example, a teenager marks the response "very much" to the item "Did you wish you were doing something else?" every time the pager signals while the student is studying, then that student has a low intrinsic motivation in schoolwork. This aggregate measure of many discrete self-reports collected in real-life contexts may not tap the same traits one would get from a more global personality test. It remains to be seen which approach (the one based on many micro measurements in real life, the other based on a single paper-and-pencil assessment) is more accurate in predicting academic achievement.

Goals of the Study

In the present study, the following questions were explored: What dimensions of personality ("high-order trait") are associated with the academic performance of talented students? How well do such personality characteristics predict scholastic achievement? How do the quality of experience while studying and the amount of time spent studying affect academic performance? Does daily experience mediate the effect of personality on academic performance? That is, does personality predict experience while studying which in turn predicts performance? Are these relationships the same for boys and girls?

Method

Subjects

Teachers from two suburban Chicago high schools were asked to nominate students to participate in a 4-year longitudinal study. These students were either freshmen or sophomores who had talents in one or more of the following areas: mathematics, science, music, sports, and art. Three hundred and ninety-five students were nominated. Two hundred and eight students (58 %) agreed to participate in the study. All of them had excellent grades in the relevant subject(s). The average grades in talent areas in the first 2 years of the study were 3.79 for science, 3.38 for mathematics, 3.88 for music, 3.85 for sports, and 3.25 for art. The talented mathematics and science students had an average Preliminary Scholastic Achievement Test (PSAT) mathematics score of 59.6 (95th percentile of all U.S. juniors). Their average verbal score was 51.5 (93rd percentile for U.S. juniors).

Many of the talented music, athletic, and art students had won awards for their outstanding performance. When compared to other students, they took more courses and participated in more extracurricular activities related to their talents. The majority of the students were Caucasians from middle-class families.

In the first year of the study, 170 students (68 males, 102 females) completed the PRF and 208 students (96 males, 102 females) filled out the Experience Sampling Forms (ESFs).[1]

Measures

Personality. The Personality Research Form (PRF; Form E) (Jackson 1984) measures 20 manifest needs originally defined by Murray (1938). The PRF shows both convergent and discriminant validity. Form E of the PRF consists of 352 true–false questions, which make up 20 personality scales[2] and two validity scales. The scales are balanced to control for acquiescence. The total score for each scale can vary from 0 to 16.

In order to identify the high-order traits that are associated with academic excellence, the personality scales of the PRF were factor-analyzed. The factor that was theoretically meaningful (i.e., contained the personality characteristics that were believed to be important in academic performance—for instance, the motive to achieve, to control impulses, endure, etc.) and had the highest correlation with academic performance was used in all subsequent analyses.

Experience while studying. The Experience Sampling Method (ESM) (Csikszentmihalyi et al. 1977; Larson and Csikszentmihalyi 1983) was used to measure experience while doing schoolwork and the percentage of time spent studying. The reliability and validity of the method have been demonstrated in a number of studies (Csikszentmihalyi and Larson 1987).

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[1] The fact that 170 students filled out the PRF and 208 students completed the ESF raises some concern about the missing data. As far as we know, there was no systematic difference between students who continued to participate in the study and those that did not. We could find only one difference between these two groups of students: The more talented the students were thought to be by teachers, the more likely they were to participate. All students who were nominated in three or more areas (i.e., math, science, music, athletics, or art) agreed to participate; about 8 out of 10 of those with two talents agreed, whereas slightly less than half of the single-talent students did. Another possible reason for subject attrition may have to do with the amount of time required to participate in the study. It is possible that some students agreed to take part in the study initially without thinking too much about the amount of time and effort required. In the first year of the study, students were required to complete several questionnaires and to be interviewed at least once. It seems understandable that some students decided to withdraw from the study.

[2] The 20 variables in PRF Form E are abasement, achievement, affiliation, aggression, autonomy, change, cognitive structure, defendence, dominance, endurance, exhibition, harmavoidance, impulsivity, nurturance, order, play, sentience, social recognition, succorance, and understanding. The two validity scales are social desirability and infrequency (to identify invalid responses).

Students were asked to carry an electronic pager for 1 week and answered questions on the ESFs whenever they were signaled. The ESFs were bound in small pads (5.5″ × 8.5″). Each pad had 15 self-report forms. Students received seven to nine random signals approximately every 2 h between 7 a.m. and 10 p.m. on weekdays and 9 a.m. and 12 midnight on weekends. In order to get a more representative sample of students' classes, signals were sent twice as often during weekdays before 3 p.m. All observations gathered when school was in session were therefore weighted as 0.5; all other observations were weighted as 1.

We focused on the following five experiential variables: intrinsic motivation, happiness, satisfaction about performance, concentration, and self-consciousness. These variables are believed to constitute different dimensions of experience (Csikszentmihalyi and Larson 1984). They were selected to be the focus of this study because they might have a close relation with academic achievement. A student who is more motivated, happier, less selfconscious, feels more satisfied about his or her work, and has higher concentration is likely to invest more time in studying, thus increasing the possibility of getting better grades. Another reason to select these variables is that they are empirically distinct. Higher correlated variables would present collinearity problems in regression analyses.

Intrinsic motivation, satisfaction with performance, concentration, and unself-consciousness were measured by the following questions, respectively, "Do you wish you had been doing something else?" "Were you satisfied with how you were doing?" "How well were you concentrating?" "How selfconscious were you?" Answers were indicated by ratings on a 10-point scale. Responses were recoded so that high scores implied a high level of motivation and unselfconsciousness. Happiness was measured by a semantic differential item: happy–sad. The score had a range of 1–7. A high score indicated a high level of happiness. To eliminate individual response biases, Z scores for each variable were computed. Responses were standardized by individual mean scores. The episodes in which students indicated that they were studying (see below) were then selected, and an average score of motivation, concentration, unselfconsciousness, and happiness was obtained for each variable.

Information about activities was obtained by the open-ended question, "What was the main thing you were doing?" Responses were first coded in a large number of specific categories (for purposes not related to this study). Categories were then collapsed into several groups for the present purposes—studying (which also included doing homework and preparing for examinations), informal social interactions (which included activities such as going to parties, dating, sexual activities, talking, going out, or meeting with friends, listening to other people, casual conversation on the phone, playing games, going downtown, cruising in a car, sightseeing, arguing with friends, etc.), watching TV, and others.

The question was coded by three experienced coders. At first, each of them coded 20 ESFs and discussed the differences in their codes. Later, they coded 60 ESFs without discussing them with one another. The interrater agreement ranged from 90 to 95 %. After this, they regularly checked their work with one another by coding the same ESFs.

The responses analyzed here were given by subjects who filled out at least 15 ESFs. Only those forms completed within 30 min after the signal were included. A total of 7,811 valid responses were given; students responded approximately 38 times on average ($SD = 10.60$, range = 15–63). Less than 7 % of students responded 20 times or less.

Originally, a total of 8,711 responses had been provided by the students. This amounts to a response rate of about 74 % (208 students, about 8 signals a day for 7 days). Nine hundred responses were deleted: The first response of every student was a practice trial and was therefore eliminated. In addition, incomplete responses and those that were given more than 30 min after the signal were also discarded.

According to Csikszentmihalyi and Larson (1984), respondents tend to vary in their compliance with the ESM. The response rate of blue-collar workers is 73 %, while some clerical and managerial workers respond up to 85 %. High-school students had a median response rate of 70 %. Therefore the response rate falls within expectations.

The data from the debriefing interview suggest that signals were usually not missed when studying or in school. Some students were unable to fill out their ESFs during examinations; however, they usually completed the form within 30 min of the signals even during examinations. The most common reasons for not responding to the signal immediately or not responding at all were as follows: technical problems related to beeper malfunction; forgetting to keep the beeper with them; doing competitive sports such as basketball or swimming; and engaging in activities such as napping or going to church.

Scholastic achievement. Information concerning grades was obtained at the end of the second year.[3] Grade-point averages (GPAs) were computed from all the courses that the student took during that year. Letter grades were converted into numbers: A, B, C, D, and E corresponded to 4, 3, 2, 1, and 0, respectively.

In addition to grades, we included the difficulty level of courses as an indicator of achievement. In this article, only the difficulty level of mathematics courses was analyzed. (Rating scales in other talent areas were still being developed when this article was written.) The difficulty scale for mathematics represents a Guttman scale. Students normally took lower level mathematics courses before proceeding to more advanced ones. The scale has a range of 0–9. A score of "0" indicates that no course was taken in an academic year. A score of "1" corresponds to the first two courses of elementary algebra; a score of "2," the third course of elementary algebra and basic computer programming; a score of "3," the two courses in plane

[3] Grade information for the third and fourth years of the study was still incomplete when this article was written. The first-year GPA was not chosen as a dependent variable because we wanted to find a variable that was measured at a different time from when information about personality and experience was collected. This could ensure that the relationship between personality, experience, and grade, if found, was not simply due to the fact that they were measured in the same year. In the regression analyses, the first-year GPA was not used as a control because it was very highly correlated with the second-year GPA, $r(195) = 0.91$, $p < 0.0001$.

geometry; a score of "4," courses in geometry, advanced computer science, and the first course of advanced algebra; a score of "5," advanced algebra and trigonometry; a score of "6," college algebra and trigonometry; a score of "7," courses in probability and statistics, analytic geometry, and advanced placement college computer science; a score of "8," the first course on advanced placement calculus; and a score of "9," the second course on advanced placement calculus.

Aptitude. Aptitude, which may confound the relations among achievement motivation, intrinsic motivation, and academic achievement, was measured by PSAT scores.[4] This widely used test of scholastic aptitude consists of a mathematics and a verbal part. The PSAT is similar to the Scholastic Achievement Test (SAT) and is designed for high-school sophomores and juniors. In the school we studied, it was usually taken in the second or third year. For the purpose of this article, the PSAT score was obtained by adding the mathematics and verbal scores.

Procedure

Students and parents were told that the study was designed to learn about the activities, thoughts, and feelings of adolescents. They were assured that the information obtained would be confidential.

Students were then scheduled for individual meetings with a member of the research staff. During the first meeting, the use of the pager and items in the ESF were discussed. Students filled out and discussed with the staff members a sample page of the ESF. They also completed a background questionnaire describing demographics and family relationships.

During the week, students carried the pager and filled out the ESF when they were signaled. After the paging, students were debriefed and were asked to describe their experience during the week and any problems they had with the pager. Finally, the PRF was given to be completed at home. GPAs and PSAT scores were collected from the school at the end of second and third years. Information concerning the courses taken by the respondents was collected at the end of each school year.

Analytic Strategy

The purposes of this article are to find out: (a) what personality variables are related to scholastic achievement; (b) how well personality and experiential (experience while studying, percentage of time spent studying) variables predict

[4] Some argue that standardized tests are not much different from school grades as achievement indices. In view of the high correlation between the PSAT and later academic success and the discrepancies between PSAT scores and grades, we believe that the PSAT represents a valid measure of student scholastic aptitude.

academic performance; and (c) whether experiential variables mediate the effect of personality on scholastic achievement. The core of the analyses consists of factor and regression analyses.

First, the PRF scales were factor-analyzed (principal component analysis with varimax rotation). Many researchers have argued for the usefulness of using the five-factor model as the basis for a taxonomy of traits [see Costa and McCrae (1988), for a review]. These five factors are Neuroticism versus Emotional Stability, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Costa and McCrae (1988), working with an adult sample, showed that the 20 needs measured in the PRF can be meaningfully classified in the five-factor model. We believe that the five-factor model is appropriate in our study as well. A five-factor solution was therefore used in the analyses.

The factor that contains achievement motivation and personality scales that are presumably important in academic performance (e.g., the need to endure, the need to control one's impulses) was selected. Using the regression method, factor scores (mean $= 0$; $SD = 1$) were computed for each student on this variable. These factor scores were then used in all subsequent analyses.

Second, in order to identify the direct and indirect effects of personality and ESM variables on scholastic achievement, a series of multiple regression models (ordinary least squares) were tested. Figure 22.1 summarizes the steps taken in the regression analyses. Any variable that has an arrow pointing to it was used as a dependent variable in a separate regression analysis. A variable from which the arrow originates was used as an independent variable.

It is important to note that path models such as Fig. 22.1 are not proof of causation. These models only help to estimate the strength of paths in any hypothesized causal model (Blalock 1964). The analyses in this article focus only on testing the model in Fig. 22.1. It is possible that reverse or reciprocal causality exists among the variables. Therefore, throughout this article, we will be very cautious about statements concerning causality. We are aware that such statements are only meaningful in the context of our hypothesized causal model.

There were two complications in the analyses, collinearity and the handling of missing cases. We encountered problems of collinearity in the process of identifying possible gender differences in the relationship between dependent and independent variables. Ideally, we would have combined boys and girls into one single data set and fit a model with interaction and main effects involving gender. However, because gender is a dummy variable, many of the interaction terms were highly correlated with the main effect terms and with one another. Moreover, the regression coefficients changed erratically when sex and its interaction terms were present in the model simultaneously. High correlation and erratic patterns of regression coefficients are indicative of multicollinearity (Draper and Smith 1981). Therefore, we conducted analyses separately for boys and girls. When significance tests of certain regression coefficients for the two groups showed different results (e.g., one is significant whereas one is not; one is significantly positive whereas the other is significantly negative), we assume that the two groups differed significantly from one another with respect to the effects of those independent variables.

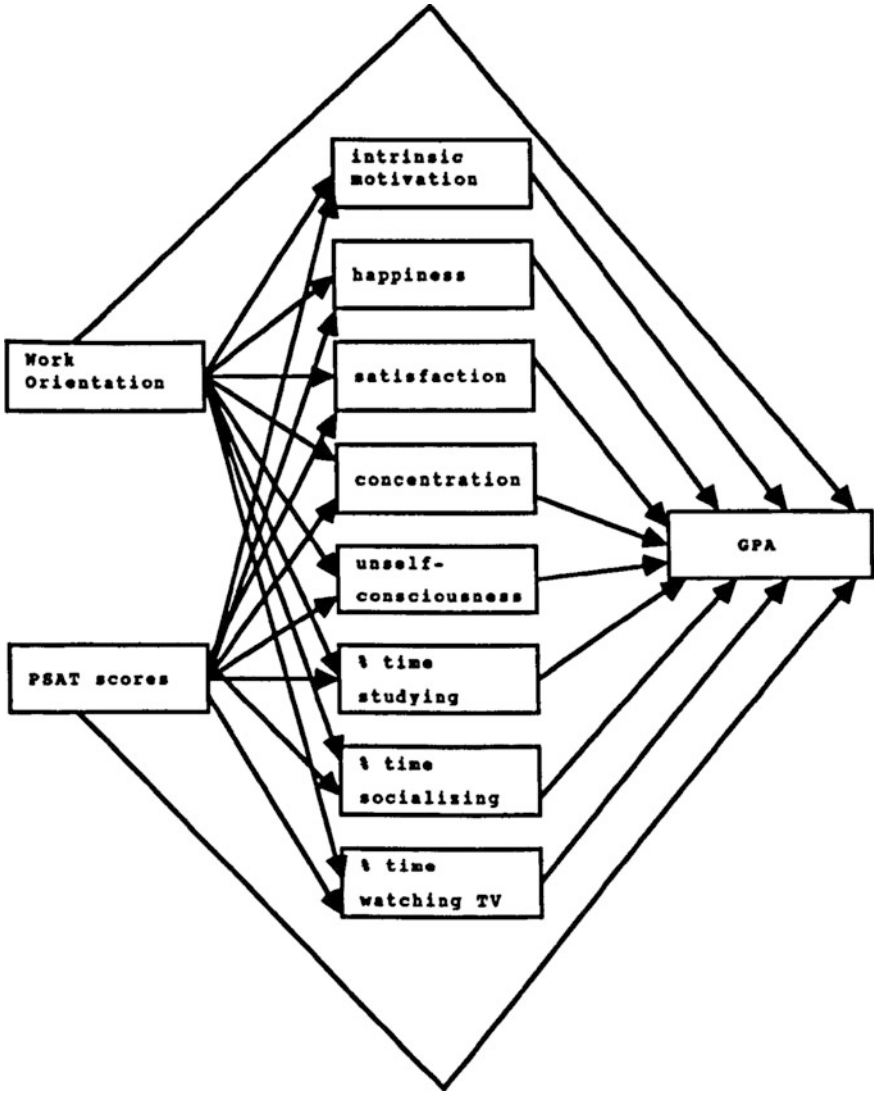

Fig. 22.1 Hypothetical relationships between personality, experience while studying, and grades

When the regression coefficients for boys and girls are both significant in the same direction, *t* tests were used to compare the coefficients of the two groups. *T* tests are appropriate for our purpose because the two samples are independent of one another and, under conventional assumptions of regression models, the least square estimators for the parameters generally are normally distributed.

We used the mean substitution method to handle missing cases. Employing listwise deletion excluded approximately 35–40 % of the data. According to (Bollen1989; see also Haitovsky 1968; Kim and Curry 1977), researchers continue

to debate which way is least biased when dealing with missing values. We computed the regression analyses using listwise and pairwise deletion methods, and found the results to be similar to those obtained using the mean substitution method.

Results

In this section, we will first present the results of the factor analysis on the PRF and the descriptive statistics for all variables. Then we will describe the multiple regression analyses on personality, experience, and scholastic achievement.

The "Work-Orientation" Factor

A principal component analysis with varimax rotation was carried out on the PRF. The first factor that accounted for most of the variance was the same for both male (eigenvalue = 3.94, accounting for 19.7 % of variance) and female (eigenvalue = 3.60, accounting for 18.0 % of variance) students. The variables that loaded highly on the first factor were also similar for both genders. These variables were achievement (the tendency to aspire to accomplish difficult tasks, to maintain high standards, and to be willing to put forth effort to attain excellence), endurance (the willingness to work long hours), cognitive structure (the desire to make decisions based on definite knowledge), order (the concern with keeping personal effects and surroundings neat and organized), play (scored negatively) (the need to do many things "just for fun"), and impulsivity (scored negatively) (the tendency to act without deliberation) (Jackson 1984, pp. 6–7). The loadings of achievement, endurance, cognitive structure, order, play, and impulsivity were 0.75, 0.58, 0.82, 0.77, −0.59, and −0.85 for males and 0.72, 0.69, 0.72, 0.70, −0.51, and −0.76 for females. This finding is similar to the results reported by Costa and McCrae (1988). In this article we call this factor "work orientation," for it consists of personality characteristics that together would facilitate the efficient use of personal energies and is therefore important for productive work. Factor scores were computed for each student. These scores were used in all subsequent analyses.

Descriptive Statistics

Table 22.1 presents the mean scores and standard deviations of all variables. No significant gender differences were found. The mean GPA for all students was 2.98, an equivalent of a B, which was not as good as their performance in their own talent areas (see the Method section). The average PSAT verbal and mathematics scores were 46.48 (86th percentile of all U.S. juniors) and 52.51 (87th

Table 22.1 Descriptive statistics

Variable	Mean	SD	Minimum	Maximum	N
Work orientation	0.00	1.00	−2.59	1.99	171
PSAT	98.94	20.34	46.00	149.00	206
Experience while studying					
Motivation	−0.51[a]	0.54	−1.93	1.21	190
Happiness	−0.22[b]	0.55	−3.56	1.38	189
Satisfaction with performance	−0.04	0.64	−2.97	1.99	190
Concentration	0.56[c]	0.58	−1.54	1.83	191
Unselfconsciousness	0.18[d]	0.62	−3.65	2.01	189
Time budget					
Percentage time studying	11.08	7.91	0.00	42.30	208
Percentage time socializing	14.08	8.61	0.00	47.40	208
Percentage time TV	9.15	7.05	0.00	32.00	208
GPA	3.04	0.70	0.58	4.00	208

[a] Mean Z score significantly different from zero: $T(189) = 12.75$, $p < 0.001$
[b] Mean Z score significantly different from zero: $T(188) = 5.50$, $p < 0.001$
[c] Mean Z score significantly different from zero: $T(190) = 14.00$, $p < 0.001$
[d] Mean Z score significantly different from zero: $T(188) = 3.60$, $p < 0.01$

percentile of all U.S. juniors), respectively. As a group, the aptitude of students in this study was above the average of U.S. normal adolescents (College Entrance Examination Board 1987).

As can be seen in Table 22.1, the experience of studying seems to be a negative one. Students were significantly less happy when they studied in comparison with the rest of the things they did during the week. Their level of motivation when studying was half a standard deviation lower than normal. However, their concentration was significantly higher and they were less self-conscious than normal. On average, students spent 11.08 % of their waking hours studying, doing homework, and preparing for examinations.

Table 22.2 lists the zero-order correlations of work orientation, PSAT scores, ESM variables, and GPAs. For both male and female students, PSAT scores had the strongest correlation with GPAs. Work orientation and percentage of time studying also correlated significantly with GPAs. Except for unselfconsciousness, none of the experiential variables had a significant relation with GPAs. GPAs had a negative relation with happiness while studying. A closer examination reveals that concentration while studying has a positive relation with GPAs for boys, $r(80) = 0.22$, $p < 0.05$, but not for girls, $r\ (108) = -0.04$, *ns*. Those who had good grades tended to have a strong work orientation but did not feel more intrinsically motivated or happier while studying. Work orientation was positively correlated with percentage of time studying and unselfconsciousness for all students. However, the correlation between work orientation and the other three experiential variables—motivation, happiness, and concentration while studying—was negligible. It appears that when compared to those with a low work

Table 22.2 Zero-order correlation coefficients

	Work orientation	PSAT	Motivation	Happiness
Work orientation		−0.07	0.12	0.10
PSAT			−0.13	−0.10
Experience while studying				
Motivation				0.18**
Happiness				
Satisfaction with performance				
Concentration				
Unselfconsciousness				
Time budget				
Percentage Time studying				
Percentage Time socializing				
Percentage Time TV				
GPA				

Note Pairs of $N = 134$–190
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

orientation, students with a high work orientation were likely to study more and tended to be less self-conscious while doing their schoolwork. However, they were not necessarily more motivated or happier while studying.

Relations Among Work Orientation, Experience While Studying, and Grades

To examine the relation among personality, experience, and grades, a series of multiple regression analyses were carried out separately for boys and girls. In the first stage of analyses, work orientation and PSAT scores were used to explain each ESM measure. In the second stage of analysis, work orientation, PSAT scores, and ESM measures were used to explain GPAs.

The results of the analyses are presented in Tables 22.3 and 22.4. The most striking results were the lack of significant effects. Controlling for PSAT scores, work orientation had significant effects on only two ESM variables, percentage of time spent studying and unselfconsciousness. This is true for both the male and female students. Work orientation had a substantial effect on percentage of time studying (males, beta = 0.30, $p < 0.01$; females, beta = 0.34, $p < 0.001$). The relation between work orientation and unselfconsciousness was relatively small (males, beta = 0.14, $p = 0.19$; females, beta = 0.13, $p = 0.18$; combined, beta = 0.13, $p < 0.05$). High work orientation students, regardless of their academic aptitude, seemed to spend more time doing schoolwork and were less self-conscious while studying. Work orientation explained satisfaction with

Table 22.3 Régression analyses predicting experience while studying

Independent variable	Dependent variables							
	Motivation		Happiness		Satisfaction		Concentration	
	B	Beta	B	Beta	B	Beta	B	Beta
Work orientation	0.01	0.02	0.01	0.02	0.17	0.22*	−0.03	−0.06
PSAT	−0.00**	−0.25**	−0.00	−0.13	−0.00	−0.04	−0.00	−0.00
Experience while studying								
Motivation								
Happiness								
Satisfaction with performance								
Concentration								
Unselfconsciousness								
Time budget								
Percentage time studying								
Percentage time socializing								
Percentage time TV								
R^2	0.06		0.02		0.06		0.00	

Time spent in different contexts, and grades among male students (unstandardized and standardized regression coefficients)

[a] $p = 0.17$; $p < 0.05$ when analyses were computed on the whole group

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

performance for boys only. How motivated, happy, and concentrated students were while studying and how much time they spent in socializing or watching TV were not affected by their work orientation.

Satisfaction	Concentration	Unself consciousness	Percentage time studying	Percentage time socializing	Percentage time TV	GPA
0.18	−0.03	0.15	0.34***	−0.08	−0.08	0.33***
−0.03	0.09	0.05	0.03	−0.08	0.09	0.51***
0.17**	0.03	0.07	0.16*	−0.02	0.01	−0.02
0.25***	0.01	−0.13	0.06	−0.25***	−0.07	−0.16*
	0.22***	0.20**	0.03	−0.10	0.01	0.03
		0	−0.13	0.01	0.02	0.07
			−0.03	0.11	−0.17*	0.26***
				−0.27***	−0.11	0.26***
					−0.21***	−0.05

Similar to work orientation, PSAT scores to a large extent did not predict any ESM measure. Controlling for work orientation, PSAT scores were negatively related to intrinsic motivation among boys, and there was no relation for girls. In

Table 22.4 Regression analyses predicting experience while studying. Time spent in different contexts, and grades among female students (Unstandardized and standardized regression coefficients)

	Dependent variables							
	Motivation		Happiness		Satisfaction		Concentration	
Independent variables	B	Beta	B	Beta	B	Beta	B	beta
Work orientation	0.07	0.14	0.07	0.11	0.06	0.10	−0.00	−0.01
PSAT	0.00	0.04	−0.00	−0.05	0.00	0.04	0.00	0.12
Experience while studying								
Motivation								
Happiness								
Satisfaction with performance								
Concentration								
Unselfconsciousness								
Time budget								
Percentage time studying								
Percentage time socializing								
Percentage time TV								
R^2	0.02		0.02		0.01		0.02	

[a] $p = 0.17$; $p < 0.05$ when analyses were computed on the whole group
[b] $p = 0.12$
[*] $p < 0.05$
[**] $p < 0.01$
[***] $p < 0.001$

other words, the higher the PSAT scores, the lower the boys' motivation while studying.

In the second stage of the analyses, work orientation, PSAT scores, and experiential variables were used to predict GPAs. Together they accounted for more than 40 % of the variance in both male and female groups. For all students, GPAs were most significantly explained by PSAT scores, followed by work orientation. Unselfconsciousness while studying also significantly predicted GPAs. Other experiential variables such as happiness, intrinsic motivation, and satisfaction about one's performance did not have any effect on GPAs. Percentage of time spent in informal social interaction and watching TV was also unrelated to GPAs.

Some gender differences were found. Among boys, concentration while studying had a significant positive effect on GPAs. Among girls, percentage of time while studying had a significant positive relationship with GPAs, even when work orientation was controlled.

Dependent variables									
Unselfconsciousness		Percentage time studying		Percentage time socializing		Percentage time TV		GPA	
B	Beta	B	Beta	B	Beta	B	Beta	B	Beta
0.11[a]	0.14[a]	2.81**	0.30**	−1.29	−0.15	0.03	0.00	0.25***	0.31***
0	0.03	0.02	0.05	−0.03	−0.07	0.03	0.07	0.02***	0.45***
								−0.14	−0.12
								−0.08	−0.06
								−0.05	−0.05
								0.35**	0.26**
								0.20*	0.19*
								0.01	0.12
								−0	−0.06
								0	0.01
0.02		0.08		0.02		0		0.44***	

Combining the results from the first and second stages of the regression analyses, we found that controlling for academic aptitude, work Dependent variables orientation had both direct and indirect effects on GPAs. For all students, unselfconsciousness mediated the effect of work orientation on GPAs. The percentage of study time mediated the effect of work orientation on GPAs only for female students. One experiential variable, concentration, had a significant direct effect on GPAs for male students.

Relations Among Work Orientation, Experience while Studying and the Difficulty Level of Mathematics Courses

In order to understand how the difficulty level of courses was related to personality and experience while studying, students talented in mathematics ($N = 64$) were selected for further regression analyses. The difficulty level of mathematics courses in the second, third, and fourth years of high school was separately regressed on work orientation, experiential measures while doing mathematics, and ability. We decided to perform these analyses on all students instead of performing separate analyses for boys and girls because otherwise we would have to split the already small sample (making statistical tests less powerful) and also because the results were largely the same for both sexes when analyses were done separately for each group.

Dependent variables									
Unselfconsciousness		Percentage time studying		Percentage time socializing		% Time TV		GPA	
B	Beta	B	Beta	B	Beta	B	Beta	B	Beta
0.07[a]	0.13[a]	2.78***	0.34***	−0.36	−0.04	−0.94	−0.13	0.16**	0.22**
0.00	0.10	0.03	0.06	−0.03	−0.05	0.03	0.07	0.02***	0.42***
								0.07	0.05
								−0.17[b]	−0.14[b]
								−0.06	−0.05
								−0.04	−0.03
								0.24*	0.18*
								0.02*	0.22*
								0	0.01
								0	0
	0.03		0.12		0		0.02		0.40***

The mean difficulty level of mathematics courses was 4.21 ($SD = 1.08$) in the second year, 5.97 ($SD = 1.35$) in the third year, and 7.53 ($SD = 2.28$) in the fourth year. On average, mathematically talented students finished courses in geometry, advanced algebra, or advanced computer science in the second year of high school. In the third year, many of them finished advanced or college-level algebra and trigonometry. In the fourth year, most students completed courses in probability and statistics, analytic geometry, or advanced placement computer science. The average PSAT math score for these students was 61.40 ($SD = 8.36$), which put them in the 96th percentile of all juniors in the U.S. These students were significantly less motivated, mean Z score $= -0.38$, $SD = 0.72$; $t(58) = -4.22$, $p < 0.001$, and had higher levels of concentration, mean Z score $= 0.58$, $SD = 0.64$; t (58) $= 7.25$, $p < 0.001$, than usual while engaging in mathematics-related work. The level of happiness, mean Z score $= -0.10$, $SD = 0.58$; $t(58) = 1.25$, *ns,* unselfconsciousness, mean Z score $= 0.01$, $SD = 0.63$; $t(58) = 0.13$, *ns,* and satisfaction about one's performance, mean Z score $= -0.13$, $SD = 0.65$; $t(58) = 1.44$, *ns,* while doing mathematics were about the same as in other activities.

The results of the regression analyses are presented in Table 22.5. PSAT math scores had a significant positive effect on the difficulty level of mathematics courses a student chose to take in each of the three years of high school. This is not surprising, given that a certain level of aptitude is needed to continue taking advanced courses. Intrinsic motivation experienced while doing mathematics as a freshman was significantly related to the difficulty level of the courses taken subsequently, especially in the second and third years. By contrast, work orientation did not seem to affect the difficulty level of courses taken in the second (beta $= -0.06$, *ns*) and third years (beta $= 0.17$, *ns).* However, in the final year of high school, work orientation had a significant positive effect on difficulty level

Table 22.5 Regression analyses predicting the difficulty level of mathematics

Independent variables	Dependent variables					
	2nd year		3rd year		4th year	
	B	Beta	B	Beta	B	Beta
Work orientation	−0.08	−0.07	0.25	0.17	0.72*	0.29*
PSAT (mathematics)	0.07***	0.52***	0.06[0]	0.40***	0.07*	0.25*
Experience while studying mathematics						
Motivation	0.47*	0.31*	0.56*	0.30*	0.84	0.26[a]
Happiness	−0.13	−0.07	−0.30	−0.13	−0.89	−0.22
Satisfaction with performance	−0.03	−0.02	−0	−0	−0.75	−0.21
Concentration	0.01	0.00	−0.22	−0.10	0.10	0.02
Unselfconsciousness	0.03	0.02	0.24	0.11	−0.20	−0.05
Time budget						
Percentage time studying mathematics	0.03	0.12	0.00	0.04	0.11	0.26
R^2		0.45		0.36	0.35	

Unstandardized and standardized regression coefficients
[a] $p = 0.06$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

achieved (beta = 0.29, $p = 0.01$). Motivation while doing mathematics was strikingly independent of the student's personality characteristics or mathematics aptitude. There was no significant correlation between motivation while doing mathematics and work orientation, $r(64) = 0.17$, *ns,* and between motivation and PSAT scores in mathematics, $r(64) = 0.08$, *ns.*

Discussion

The results seem to support the notion that there are indeed two kinds of motivation in scholastic achievement, one directed toward long-term goals (work orientation), the other directed toward the enjoyment of experience while one studies (intrinsic motivation while studying). We found no relation between work orientation and intrinsic motivation while studying. In general, work orientation did not seem to explain the different dimensions of experience while studying except that it has a small but significant positive effect on lack of self-consciousness. However, work orientation did have a strong positive effect on the amount of time spent studying. In other words, students with a high work orientation are more likely to be less self-conscious while studying and would probably study more, yet they do not necessarily feel motivated, happy, or satisfied about their performance while they study. Thus it appears that at least in high school, students study hard not so much because they are intrinsically motivated or happy

in their work, but because they want to achieve certain long-term goals such as getting good grades.

The two types of motivation in scholastic achievement appear to explain different kinds of academic outcomes: holding ability constant, work orientation affected grades, and intrinsic motivation while studying affected how far students progressed in the area of their talent. Work orientation had both positive direct and indirect effects on grades. For all students, the level of unselfconsciousness mediated the effects of work orientation on grades. Among female students, the percentage of time spent studying also mediated the effects of work orientation.

Thus the results suggest that controlling for ability, high work orientation students, who have a tendency to aspire to accomplish difficult tasks and to maintain high standards (high on achievement motivation), a willingness to work hard (high on endurance), a dislike for ambiguity (high on cognitive structure), a need to be organized (high on order), an ability to control impulses (low on impulsivity), and an ability to forgo immediate gratification (low on play) are likely to excel in school. These students typically spend more time studying and tend to be less self-conscious when they study. Being selfconscious appears to prevent people from focusing on task-relevant information and problem-solving strategies. Past research has shown that self-consciousness is usually related to lower affect and personal involvement (Csikszentmihalyi and Figurski 1982) and interferes with the enjoyment of activities (Csikszentmihalyi 1975, 1978). Self-consciousness probably leads to self-evaluation (e.g., Duval and Wicklund 1972) and since one's standard usually represents certain ideals, self-consciousness often brings along negative affect about oneself, which may have a negative effect on task performance.

Whereas a persistent orientation toward work seems to have a strong relation with grades, intrinsic motivation while studying appears to have a strong relation with the difficulty level of the courses students take over their academic careers. The analyses with mathematically talented students showed that work orientation had no significant effect on the difficulty level of courses except in the last year of high school. However, intrinsic motivation while studying seems to be strongly related to the difficulty level, especially in the early years of high school. In these years, students have more freedom to choose what they study without having to worry about preparing for college. On the contrary, many seniors might take advanced mathematics courses even if they did not enjoy them because those courses are prerequisites for many college majors. It appears that when students are relatively free of pressure, how far they want to progress in a certain field depends on how intrinsically motivated they are when studying that subject. This is understandable because advanced courses are optional and more difficult to handle, and as a result, experiential rewards become more important. Students who take more difficult courses may not necessarily be the ones who excel in high school. Yet in the long run, they are probably the ones who welcome new challenge, persist in the face of obstacles, and maintain their interest in spite of failures. All these characteristics are important for long-term achievement (Dweck and Elliott 1983).

A number of gender differences were found in this study. The two most interesting ones were also the most puzzling. First, after controlling for work

orientation and ability, the amount of time studying did not have a significant effect on the grades of male students. Work orientation was positively related to both the percentage of time studying and grades for all students. However, among female students, even after controlling for work orientation and ability, the percentage of time spent studying still had a positive effect on grades. Second, concentration while studying was significantly related to grades for boys only. The level of concentration did not seem to have any relation with grades for girls.

Intuitively, both the percentage of time spent studying and the level of concentration are important factors affecting grades. One would expect that students who get good grades study more and maintain a high level of concentration while studying. Why the two sexes differ with respect to the effects of these variables is not immediately clear. What we do know is that the two groups did not differ on the amount of time studying and the level of concentration.

Past studies have shown that girls generally have a more positive attitude toward school and value their education more than boys (Jackson 1968; Lueptow 1975; Minton and Schneider 1980). It is possible that more girls value studying and believe in the value of hard work. Those who want to perform well academically may choose working hard as a strategy, and their belief enables them to make productive use of their study time. However, boys may not necessarily hold a positive attitude toward studying, which may affect the quality of their study time. As a result, the amount of time they put in does not necessarily lead to productive results. In this case, concentration while studying may become a particularly important factor that differentiates those who do or do not get good grades. However, such an interpretation is highly speculative at this point. More work is needed to understand the possible gender differences on values, beliefs, and strategies concerning schoolwork and studying.

The fact that respondents in this study were talented may raise some concern about the generalizability of the findings. When this group was compared to a group of normal students, no major differences were found in the experiences in different activities and social contexts (Csikszentmihalyi et al. 1987). Therefore we believe that the results can be generalized to the normal adolescent population.

There were at least four limitations of this study: First, the difficulty level analysis was carried out only on the mathematics students. Second, we did not investigate how the relation among personality, experience, and performance might differ in specific domains.[5] Third, we focused only on the effects of motivation on academic achievement and did not investigate how level of achievement can affect subsequent motivation. Fourth, daily experience was sampled in a

[5] We computed the regression analyses on the gifted scholars (talented mathematics and science students) and others (talented music, athletics, and art students) separately. The results were essentially the same as those for the whole group. However, PSAT scores do not reflect much about musical, athletic, and artistic ability. Similarly, GPAs provide little information about musical, athletic, and artistic excellence. Because we did not have good indicators of aptitude and performance in these domains, we think that the analyses are not very meaningful.

relatively short period of time (i.e., 1 week in the first year), while information concerning grades was collected over the course of 1 year (i.e., the second year).

The results of this study showed that intrinsic motivation plays an important role in a student's decision to take more advanced mathematics courses. While it is reasonable to think that intrinsic motivation is equally important in other areas, this remains an empirical question. Another important line of research concerns the relation between work orientation and achievement in less academic areas such as music, art, and athletics. Ability and achievement are defined differently and perhaps less clearly in such areas. Performance in these areas is less important for future education than it is for academic subjects such as mathematics or science unless students decide to major in these areas in college. It would be useful to examine in detail how the relations among personality, experience, and performance vary in these nonacademic subjects.

A third issue that deserves attention is the reciprocal relation between motivation and academic achievement. The level of motivation can certainly affect achievement. It is also likely that level of achievement can affect subsequent motivation. Failure experienced in activities, especially those in which others excel, would make an individual question his or her ability (Kelley and Michela 1980). Negative self-perceptions hinder performance and also lower expectations for future success (Weiner 1985, 1986). When people think that they have low ability in certain activities, they may reduce their effort so that failure can be attributed to lack of effort rather than lack of ability (Covington 1984, 1985; Jagacinski and Nicholls 1990; Snyder et al. 1978). In contrast, when people perceive themselves as competent in certain areas, they exhibit a high degree of perseverance in those areas (Bandura 1990). When confronted with difficulties, they exert greater effort to master the challenge (Bandura and Cervone 1983, 1986; Cervone and Peake 1986; Jacobs et al. 1984). It seems clear that failure and success experiences affect the level of motivation. However, it remains unclear as to when, how, and to what extent motivation and personality mutually affect one another.

Finally, there is a need to examine how the relations among personality, experience while studying, and academic performance vary when different methods of sampling experience are employed. In the present study, a random sample of daily reports was collected during 1 week through the use of an electronic pager. Although we believe that the data we collected represent a random sample of students' daily activities and moods, it might be that 1 week is too short for predicting grades in the following year. Findings may vary with different methods of sampling experience. Such methods would include using the ESM at different periods of time or using other techniques such as the Rochester Interaction Record (Reis and Wheeler 1988; Wheeler and Nezlek 1977).

A potentially important research agenda for psychologists interested in daily experience is the development of more economical and convenient ways to collect daily experience data. Unless these methods are available, many researchers will have to settle for measuring experience within a relatively short period of time. Much research is needed to identify these methods, document their psychometric properties, and systematically compare them to one another.

This study showed that students generally felt sadder and less motivated than usual when they were studying, which is in accordance with past findings (Csikszentmihalyi and Larson 1984; Csikszentmihalyi and Nakamura 1989). The situation was no different for those whose grades were better. Intrinsic motivation and happiness while studying did not predict grades. For most students, study is not something they would choose to do if given a choice, and they do not feel happy while doing it. However, students in the present study did experience high levels of concentration and unselfconsciousness, which are two important indicators of optimal experience. Over the past two decades, our work has shown that unself-consciousness and concentration are important indicators of flow (Csikszentmihalyi 1975, 1990b; Csikszentmihalyi and Csikszentmihalyi, 1988; Csikszentmihalyi and LeFevre 1989), a state in which people's skills are in accord with the challenge presented by the activity. When people are in flow, they perceive clear goals and feedback and are totally absorbed in their experience. Such absorption seems to motivate them to seek out the experience again, even if it was not necessarily perceived as a "pleasant" one. So whether students in this study were conscious of it or not, they did derive some immediate rewards from studying.

Today, educators devote a great deal of attention to improving scholastic performance by concentrating on the cognitive aspects of learning. While this is certainly justifiable, it is also important to understand what motivates students to become interested in their work. In this study, intrinsic motivation did not have a significant effect on grades, rather it predicted how advanced an academic career students were willing to pursue. Students who did not enjoy studying were less likely to take the more advanced courses. In the long run, it is enjoyment that motivates students to pursue knowledge beyond minimum requirements.

In this culture, we take for granted that work has to be separated from play. We assume that we can enjoy ourselves only when we are free from challenging obligations. Unfortunately, many educators share the view that study is inherently unpleasant and focus on setting up external controls to make sure students study. But perhaps the first step in enhancing motivation to learn is to change this preconception. By helping students to become absorbed in challenging tasks, and by allowing them to take the initiative in learning, we may help them to find out that learning can be as enjoyable as any leisure activity.

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Chapter 23
The Experience of Leisure in Adolescence

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In recent years it has been fashionable to assert a more subjective view of leisure (e.g., Harper 1986; Iso-Ahola 1980; Mannell 1979; Neulinger 1981; Shaw 1985). This is due in part to a more general willingness to transcend simple behavioral paradigms in favor of those which offer insight into the experience of human beings, their cognitions and feelings, and to investigate those phenomena such as happiness and well-being which are not readily observable. And accordingly, it reflects a discontent with attempts to generalize about the meaning of leisure from the common activities of "free time" when neither the meaning of the activity nor the feeling of freedom can be assumed.

Thus leisure has been differentiated from recreation and free time primarily in the seeking of specific experiential parameters. Precedent for this endeavor has been found in the philosophical treatment of leisure by deGrazia (1962) and Pieper (1963). DeGrazia argues that "Leisure remains a concept outside of time" (p. 330), and that recreation and play act in service of restoration for work while leisure is "a state of being in which activity is performed for its own sake" (p. 13). Pieper makes

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a similar distinction and asserts further that leisure is a "mental and spiritual attitude" characterized by serenity, receptiveness and affirmation (1963, p. 40–41).

In the psychology of leisure literature, Neulinger (1981) points to perceived freedom and intrinsic motivation as the critical components of the leisure experience, with the former being most important (pp. 15–18). Iso-Ahola (1979a, b) showed that others (college students) recognize these as concomitants of "leisure" also. Furthermore, while Neulinger argues that leisure is indistinguishable from work when the latter is intrinsically motivated and self-directed, Iso-Ahola found that subjects identified leisure as having a low relationship to work.

Such academic efforts notwithstanding, the public at large associates leisure with free, unobligated time. And whether we seek to give special emphasis to a more ideal conception of leisure, there is good reason to concern ourselves with all that happens in the name of leisure, as it is experienced daily. Iso-Ahola (1980) distinguishes free time as the "objective" condition of leisure from the subjective conditions, perceived freedom and intrinsic motivation (pp. 8–9). And while there is certainly subjectivity in the perception of free time as well, this investigation is an attempt to determine the extent of the "subjective leisure" of perceived freedom and intrinsic motivation which is actually to be found in the "objective leisure" of free time, and to compare that experience with experience in other objectively-defined, obligated, contexts such as at work and school.

As a target population, the present investigation will focus on adolescents. Previous research on leisure in adolescence has been concerned with the overt activity patterns of adolescents and the factors which influence those patterns (cf. Hendry 1983; Roberts 1983; Willits and Willits 1986) or with adolescent orientations toward leisure (e.g., Iso-Ahola and Buttimer 1981; Noe 1969; Noe and Elifson 1976). Among the most important findings of this research are the results of two long-term longitudinal studies revealing associations between free time activity in later childhood and adolescence and adjustment in adulthood (Brooks and Elliott 1971; Glancy et al. 1983). Little attention, however, has been given to how adolescents actually experience daily leisure activities, or to just how this experience might be important in the preparation of adolescents for their adult lives. Given more current conceptualizations of leisure, such an approach is certainly warranted.

The present focus on adolescents recognizes both the uniquenss of this age group and its continuity with other ages. Adolescents have the experience of childhood play, with all of its freedom, as a template to which to compare the freedom and enjoyment of their current existence. And while they do not yet have the explicit demands and responsibilities of adult life, they are "workers" in school and are increasingly called upon to engage in activities presenting difficult challenges and requiring sustained mental effort. The task, in a sense, is that of rediscovering the free and intrinsically rewarding experiences of childhood play within the more structured and serious demands of the adult lives they are beginning to shape (Csikszentmihalyi and Larson 1984; Hamilton 1983). Can they find the experience of leisure in the spaces of time between their new obligatory activities? Can they learn to have positive, rewarding experiences in activities involving concentration and challenge? How they experience the different parts of

their daily activity, where they find freedom and intrinsic motivation, may well be indicative of the fulfillment they will achieve as adults.

The degree to which adolescents are able to find freedom and intrinsic motivation is the first subject of this report. Free time will be compared with other contexts of daily life to establish the most common conditions for these two dimensions of experience. Level of affect in leisure will also be considered, since this was a dimension of experience associated with leisure in other research (Samdahl 1986; Shaw 1985).

Secondly, we will endeavor to identify within free time those activities which not only exhibit greater degrees of perceived freedom, intrinsic motivation and positive affect, but which in addition reflect patterns consistent with adjustment to adulthood. To what extent are young people able to challenge their developing capacities in leisure? To examine this the most common adolescent leisure activities will be evaluated in terms of the experiential dimensions of concentration and challenge.

Method

Subjects

The sample consisted of 75 adolescents stratified by gender, high school grade, and two residential zones (one lower-middle class, the other upper middle class), from a midwest suburban high school. These participants were randomly selected with the final sample consisting of 60 % of the girls and 45 % of the boys who were invited.

Procedure: Experience Sampling

Experience sampling is a method for gathering self-reports of the thoughts, feelings, and actual activities of individuals in the course of everyday life. Subjects carrying pagers like doctors are "beeped" randomly from a central signal source. Following the typical protocol used in previous studies (Larson and Csikszentmihalyi 1983), respondents received one signal within every two waking hours over the period of 1 week.

As with earlier studies, when subjects were signalled, they completed two pages in a self-report booklet, taking about 2 min each time to do so. The form includes open-ended items asking about what one was doing at the time, where and with whom and likert-type scales to assess affect, activation and motivation, and perception of freedom, challenge, skill, concentration and self-consciousness.

Contrary to what might be expected, the method is not particularly disruptive. Subjects occasionally report being self-conscious as a result of carrying the pager and thinking about when the next signal would come, and pagers were turned off at

various points in the interest of privacy; but such occasions were relatively rare. In this study the average student received and responded to 69 % of the signals, which reflected missing reports due to sleep, mechanical failure of the pager and a wide variety of other influences. Only students who had filled out self-reports for at least 40 % of the signals were included in the final sample. The total number of self-reports collected was 4,489.

In recruiting students it was explained to them that "Adults have a limited sense of what it is like to be a teenager. We want to get your story of what you go through in a typical week" (Csikszentmihalyi and Larson 1984, p. 287).

Although the study served a broader set of purposes (see Csikszentmihalyi and Larson 1984), much of the data collected bears on the matter of objective and subjective aspects of leisure. Intrinsic motivation was assessed with the item "As you were beeped… did you wish you had been doing something else? Responses were made on a ten-point scale from "not at all" to "very much".

Perceived freedom was assessed in response to the question: "How much choice did you have in selecting this activity? (How easily could you have chosen to do something else?)" with the response options ranging from 1, none, to 5, very much.

Additionally, the items measuring affect, concentration, and challenge provided data of relevance to the question of the other qualities of leisure activities. Semantic differential items happy-sad, irritable-cheerful, lonely-sociable, and angry-friendly were combined for an affect score. Concentration was assessed from responses to the item "How well were you concentrating?" from 0, not at all, to 9, very. Challenge was assessed from the response to the item "Challenges of the activity", from 1, low, to 10, high. Values for all of these scales were converted to z-scores to control for individual variation in means and standard deviations.

Finally, the activities themselves were determined by responses to the question, "What was the MAIN thing you were doing [as you were beeped]?" These were coded into 16 basic categories with interrater agreement of 80 %.

Results and Discussion

From the 4,489 completed self-reports, activities were grouped into three conventional categories: productive, maintenance and "leisure". Productive activities included classwork (12 %), studying (12.7 %) and jobs and other productive activities (4.3 %). Maintenance activities included eating (5.6 %), personal care (3 %), transportation (4.9 %), chores and errands (13.3 %), and rest and napping (3.2 %). In the category of leisure, which accounted for 40 % of all occurrences, were socializing (16 %), sports and games (3.4 %), watching TV (7.2 %), non-school reading (3.5 %), arts and hobbies (1.5 %), thinking (2.4 %) and other leisure (4.6 %).

While this category system represents a rather broad interpretation of leisure, treating it more as a residual category after production and maintenance, it is consistent with what Iso-Ahola (1980) meant in referring to free time as the

Table 23.1 Comparison of intrinsic motivation, perceived freedom and positive affect in productive, maintenance and leisure activities

Activity category	(% time)	Subjective experience		
		Intrinsic motivation	Perceived freedom	Affect
Productive	29	−0.40[a]	−0.38	−0.18
Maintenance	31	0.08	−0.11	−0.02
Leisure (free time)	40	0.21	0.24	0.14
Eta^2		0.07**	0.06***	0.02*

[a] Average z-score across all activities in category
*$p < 0.01$
**$p < 0.001$
***$p < 0.0001$

objective condition of leisure. To examine the subjective aspects, at least intrinsic motivation and perceived freedom must be taken into account, but as suggested earlier, positive affect is also relevant. Table 23.1 shows the average z-score on the perceived freedom, intrinsic motivation and affect variables associated with activities in each of the three "objective" categories.

As Table 23.1 indicates, behavioral occurences sampled during free time were indeed experienced as more intrinsically motivating and more free and were associated with more positive feelings than those during productive and maintenance activity. While this does not yet tell us about specific activities it does lend some support for the convergence of leisure as objectively defined with the experiences most generally associated with its subjective state. Of course, it must be remembered that this is an adolescent sample. In making a similar comparison with an adult sample, Graef et al. (1983) found very little difference in the extent of intrinsic motivation associated with free time and with activities at work. But for adolescents, anyway, leisure is distinctive in its association with high levels of perceived freedom, intrinsic motivation and positive affect.

Considering the additional dimensions of concentration and challenge provides a quite different picture. As Table 23.2 indicates, leisure activities reflect only slightly higher levels of concentration and perceived challenge than maintenance activities and considerably lower levels than productive activities. While this is consistent with the connotation of leisure as relaxing (Kleiber 1985; Shaw 1985), it does suggest also that free time activities rarely require much in terms of effort and attention.

Of course, another argument to be made is that the experience (or experiences) of leisure are simply not well captured in the residual composite category of nonproductive, nonmaintenance activities identified here. And since the respondents' own subjective understandings of leisure were not directly assessed in this study (cf. Samdahl 1986; Shaw 1985), a closer examination of specific activities may give us a better understanding of the variations in experience associated with free time (if not "leisure") activities. More importantly, an activity-by-activity analysis allows us to serve our second purpose: the identification of specific leisure activities which involve challenge and mental effort.

Table 23.2 Comparison of concentration and challenge in productive, maintenance and leisure activities

Activity category	Subjective experience	
	Concentration	Challenge
Productive	0.33	0.54
Maintenance	−0.22	−0.26
Leisure (free time)	−0.06	−0.17
Eta^2	0.05*	0.12*

*$p < 0.0001$

Table 23.3 Experiences associated with various leisure and nonleisure activities

Activities	Subjective experience				
	IM	PF	Aff	Conc	Chall
Socializing	0.26	0.11	0.36	−0.16	−0.24
Sports and games	0.48	0.29	0.22	0.38	0.77
TV watching	0.08	0.40	−0.09	−0.19	−0.72
Music listening	0.53	0.36	0.10	0.07	0.48
Art and hobbies	0.66	0.57	−0.01	0.61	0.98
Reading	0.16	0.58	−0.25	−0.11	−0.17
Thinking	−0.46	−0.16	−0.27	0.06	−0.12
Rest and napping	0.57	0.03	−0.59	−1.00	−0.70
Eating	0.45	0.04	0.30	−0.29	−0.51
Studying	−0.44	−0.37	−0.27	0.48	0.73
Eta^2	0.14*	0.09*	0.09*	0.15*	0.32*

*$p < 0.0001$

Table 23.3 lists the mean z-scores on the five experience variables associated with seven free time activities, two maintenance activities (eating and resting) and one productive activity (studying). The developmental value of each should be judged as the composite effect of all five dimensions.

While socializing and eating are high on affect and intrinsic motivation they are low on concentration and challenge. Likewise, watching television, listening to music, reading, and resting are activities involving little demand; for all of them average concentration and challenge are below the mean. This set of activities would appear to reflect the category of relaxed leisure, a type of experience that may restore one's energy and spirit, but does not require exertion of effort. In this sense they are not fundamentally different from the spontaneous pleasure experienced in childhood play, and the capacity to enjoy them does not in itself reflect a step toward adulthood.

A distinct category of leisure experience appears to be present in sports and games and in art and hobbies. Within these activities freedom and intrinsic motivation are reported simultaneously with high challenge and concentration: fun

is experienced along with the demand for exertion of effort. In other words, these activities appear to combine the subjective experience of childhood play with the requirement of structured attention that is a part of many adult activities (see also Chalip et al. 1984).

The special significance to adolescents of this latter category of leisure activities is pointed out by Csikszentmihalyi and Larson (1984) who refer to these as "transitional activities." As we have seen, at this age youth are generally bored and disinterested in the productive part of their lives. While there are many exceptions, adolescents have generally not yet learned to find enjoyment in the demands and challenges placed upon them by the adult world, demands whose fulfillment will eventually become critical to their adult lives and essential to the viability of the society as a whole. These transitional activities would appear to provide a bridge. They offer the experience of freedom and intrinsic motivation within highly structured systems of participation, systems that require discipline and engage an adolescent in a world of symbols and knowledge outside the self. It is expected that the enjoyment found within this category of leisure—whether it takes the form of sports, learning a musical instrument, carrying out a 4-H project or something similar—lays a groundwork for experiencing enjoyment in more obligatory adult activities. The teenager who can learn to experience freedom and intrinsic motivation in these demanding activities may find it much easier to experience enjoyment in all domains of his or her life.

In summary, these data on the experience of adolescents suggest two categories of leisure. One, which we have called relaxed leisure, is typically found in the free time activities of socializing, watching television, reading, and listening to music. It is also found in the maintenance activities of eating and resting. This type of leisure provides pleasure without high personal demands. Thus, while it may be regenerative, it is not significant to the developmental issues considered here. The other type of leisure, which we have associated with so-called transitional activities, occurs most commonly in sports, games, artwork and hobbies. It provides the subjective experience of leisure within a context of effort and demand. As such it is hypothesized to provide an important developmental link in the acquisition of a capacity for enjoyment in serious and demanding adult activities.

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Chapter 24
Student Engagement in High School Classrooms from the Perspective of Flow Theory

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We present a conceptualization of student engagement based on the culmination of concentration, interest, and enjoyment (i.e., flow). Using a longitudinal sample of 526 high school students across the U.S., we investigated how adolescents spent their time in high school and the conditions under which they reported being engaged. Participants experienced increased engagement when the perceived challenge of the task and their own skills were high and in balance, the instruction was relevant, and the learning environment was under their control. Participants were also more engaged in individual and group work versus listening to lectures, watching videos, or taking exams. Suggestions to increase engagement, such as

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focusing on learning activities that support students' autonomy and provide an appropriate level of challenge for students' skills, conclude the article.

School psychologists are rightfully concerned with some of the more stubborn and persistent educational problems facing students today. Such problems include underachievement as well as learning, behavioral, and emotional difficulties that eventually lead to school dropout for many students (Battin-Pearson et al. 2000). Dropping out of school is theorized to be a gradual process of student disengagement and alienation, marked by a chronic cycle of tardiness, absenteeism, failing classes, suspensions, and transitions between schools (Finn 1989). Nevertheless, even among students who finish the required years of schooling, some research has found high rates of boredom, alienation, and disconnection with schooling (Larson and Richards 1991). Studies have characterized high school students, in particular, as bored, staring out classroom windows, counting the seconds for the bell to ring, and pervasively disengaged from the learning process (Goodlad 1984). According to a recent study on student engagement by Steinberg et al. (1996), 50 % of students reported that their classes were boring, and up to one-third reported that they survived their school day by "goofing off" with their friends.

However, students do not experience alienation and disconnection during all encounters with learning. Certain conditions may promote excitement, stimulation, and engagement in the learning process. In this article, we focus on student engagement within the framework of flow theory (Csikszentmihalyi 1990). This study focuses on how students spend their time in high school classrooms, and the conditions under which they become more engaged in learning.

Research on Student Engagement

In recent years, there has been growing awareness of the importance of student engagement for learning and achievement (e.g., Newmann 1992; Steinberg et al. 1996). The likelihood of successful school completion is maximized by student involvement and participation with the schooling process that fosters a sense of commitment and belongingness (Christenson et al. 2001). We focus particularly on the phenomenological aspect of high involvement in classrooms, which includes concentrated attention, interest, and enjoyment as opposed to apathy and lack of interest with instruction (Newmann et al. 1992). High engagement during tasks in high school classrooms has been a significant predictor of continuing motivation and commitment as well as overall performance in college (Shernoff and Hoogstra 2001). Student engagement is influenced by a variety of aspects such as the following:

Phenomenological factors: Research suggests that student engagement may be influenced by several phenomenological factors, including the relevance of instruction and perceived control. With respect to instructional relevance, students are more likely to become engaged with authentic academic work that intellectually involves them in a process of meaningful inquiry to solve real life problems that extend beyond the classroom (Newmann et al. 1992). Student engagement has

also been related to how much control students have over their learning activities and positive emotions in the classroom (Deci et al. 1981).

Instructional and teacher factors: Student engagement may also be affected by contextual and classroom factors, such as instructional format and school subject. With respect to the former, lecture recitation is among the most common teaching formats, in which control remains with the teacher. However, research by Grannis (1978) and Stodolsky (1988) indicates that students are more engaged in student-controlled versus teacher-controlled learning activities. A useful distinction to make is that whole group instruction tends to be perceived by students as relatively teacher-controlled, whereas small group and individual instruction are perceived as relatively student-controlled (Marks 2000). In addition, exams and other external evaluations that emphasize social comparisons also appear to have negative consequences on students' interest and engagement (Boggiano et al. 1988).

Demographic factors and learning history: Various studies have found student engagement to be mediated by individual factors. For example, females report being more engaged in classrooms than males (Finn and Cox 1992) and sixth and eighth graders were more engaged than tenth and 12th graders (Yair 2000). One individual factor that has been found to influence engagement positively is reinforcement history, or the degree to which on-task behavior has been rewarded or praised in the past (Martens et al. 1997). It should be noted, however, that the effect sizes corresponding to demographic differences and previous learning history are small in comparison with instructional and classroom factors (Marks 2000; Shernoff et al. 2001).

Flow Theory

Flow is a state of deep absorption in an activity that is intrinsically enjoyable, as when artists or athletes are focused on their play or performance (Csikszentmihalyi 1990). Individuals in this state perceive their performance to be pleasurable and successful, and the activity is perceived as worth doing for its own sake, even if no further goal is reached (Nakamura and Csikszentmihalyi 2002). The individual functions at his or her fullest capacity, and the experience itself becomes its own reward (DeCharms 1968; Deci 1975). Highly creative artists and scholars have reported the experience of flow when engaged in their best work (Csikszentmihalyi 1996).

Flow theory is based on a symbiotic relationship between challenges and skills needed to meet those challenges. The flow experience is believed to occur when one's skills are neither overmatched nor underutilized to meet a given challenge. This balance of challenge and skill is fragile; when disrupted, apathy (i.e., low challenges, low skills), anxiety (i.e., high challenges, low skills), or relaxation (i.e., low challenges, high skills) are likely to be experienced (Csikszentmihalyi 1997). The experience of anxiety or relaxation may prompt an instructor to change the level of challenge, and also prompt the student to increase his or her skill level in

order to reenter flow. Issuing appropriate challenges and providing opportunities to enhance skills (e.g., providing immediate feedback and incrementally teaching more complex skills that build upon previously learned skills) may be one of the most ideal ways of engaging students.

Because the flow state is intrinsically rewarding, individuals seek to replicate flow experiences. This introduces a selective mechanism into psychological functioning that fosters growth (Nakamura and Csikszentmihalyi 2002). As individuals seek to master new challenges, they develop greater levels of skill. Once mastered, they must identify progressively more complex challenges to create an ideal match for their skills. Flow thereby invokes a growth principle, in which a more complex set of capacities is sought after and developed.

Flow and Student Engagement

Based on flow theory, concentration, interest and enjoyment in an activity must be experienced simultaneously in order for flow to occur (Csikszentmihalyi 1997). While our study combines these variables into an engagement composite score, each variable is an important component of flow theory and will be reviewed briefly.

Concentration. Flow experiences are described as states of intense concentration or absolute absorption in an activity (Csikszentmihalyi 1990). In educational contexts, deep absorption in activities has been shown to promote optimal learning experiences. For example, Csikszentmihalyi et al. (1993) reported that a sample of talented teenagers concentrated more than their average peers during classroom and study activities, but comparatively less while watching television and engaging in social activities. This finding suggests that the ability to harness concentration for more complex mental tasks may be one of the hallmarks of achievement and talent development.

Interest. Interest in an activity is a fundamental aspect of flow experiences, setting the foundation for continuing motivation and subsequent learning. Researchers have argued that interest provides the basis for becoming engaged with a topic for its own sake (Deci and Ryan 1987). Acting on intrinsic interest alone, individuals seize opportunities to learn, read, work with others, and gain feedback in a way that supports their curiosity and serves as a bridge to more complex tasks.

Enjoyment. Flow activities, including intellectually demanding tasks, can also be enjoyable and satisfying. They may provide a feeling of creative accomplishment and satisfaction. Such feelings may occur mainly in retrospect because all concentration is focused on the task during actual engagement (Csikszentmihalyi 1990). In any event, individuals who have developed their talent and creativity are those who continue to follow their sense of enjoyment in chosen activities (Csikszentmihalyi 1996).

Rationale and Research Questions

Most of what is known about motivation and instruction is derived from research using experimental designs (see Stipek 1996). Because classrooms are settings in which students largely participate in compulsory activities, measures that have been developed under experimental conditions may have limited applicability when investigating participation in free-choice (i.e., student-selected) activities. Therefore, more ecologically valid measures have been recommended (Brophy 1983). Moreover, few studies have examined the experience of flow in the classroom setting. Given these limitations, the present study investigates the theory of flow in classrooms and whether learning situations featuring high challenges matched with high skills were associated with high engagement. Three research questions were investigated: (1) How do high school students spend their time in school? (2) What is the association between student engagement and the experience of challenge, skill, control, and relevance? and (3) How do classroom factors, such as instructional method and school subject matter influence student engagement?

Method

Participants

This study is based on data from the Sloan Study of Youth and Social Development (SSYSD), a national longitudinal study that investigates how students think about their lives in relationship to the future (Csikszentmihalyi and Schneider 2000). These data were collected in three waves: 1992–1993 (Year 1), 1994–1995 (Year 3), and 1996–1997 (Year 5). Twelve research sites across the U.S. were selected for the study. Sites were widely distributed geographically and differed in level of urbanization, racial and ethnic composition, labor force composition, and economic stability. Data were collected from at least one elementary, middle, and secondary school in each site. A total of 13 high schools were sampled (one in each of the 11 sites, and two in the 12th site).

Students in grades six, eight, ten, and twelve were randomly selected from school-prepared enrollment lists and stratified by gender, race, ethnicity, and academic performance. This study selectively utilized a high school subsample of the SSYSD (i.e., grades 10–12); classrooms in elementary and middle schools were regarded as inappropriate to include when considering the effect of contextual factors such as school subject (e.g., vocational education). For each participant, only data collected in a single year were analyzed. To maximize the high school sample, we selected 12th-grade students ($n = 168$) in Year 1 of the study, tenth-grade students ($n = 138$) and 12th-grade students ($n = 120$) in Year 3 of the study, and tenth-grade students ($n = 100$) in Year 5 of the study. Thus, the sample consisted of 526 students from three separate cohorts in the 1990s. Sixty-two

percent of the sample was female and 34 % was male. Sixteen percent of the sample was African American, 8 % was Asian American, 10 % was Latino, and 64 % was European American. The breakdown of race/ethnicity does not total 100 % due to missing data. By averaging indexes on parental education and status of parental occupation, socioeconomic status of participants' families was as follows: 7 % were low income, 15 % were lower-middle income, 37 % were middle income, 27 % were upper-middle income, and 14 % were upper income. A response bias occurred under-representing males, Latinos, and students from low income families when compared to national demographics. Care must be taken to interpret results of this study with these response biases in mind. (for further details concerning the sampling design and procedures of the full-scale study, see Csikszentmihalyi and Schneider 2000).

Instrumentation

Experience Sampling Method (*ESM*). The ESM measures participants' location, activity, and affective and cognitive experiences at random moments. It is particularly valuable for eliciting the subjective experiences of persons interacting in their natural environments. Previous research has demonstrated ESM as both reliable and valid (see Csikszentmihalyi and Larson 1987; Moneta and Csikszentmihalyi 1996).

After being signaled by an electronic pager, participants took several minutes to complete an Experience Sampling Form (ESF). The ESF contained approximately 45 items on two sides of a single page. The first four items were open-ended questions asking participants to report their location, their thoughts, and the primary and secondary activities in which they were engaged. Participants next reported their perceptions about the activity with which they were engaged using Likert-type response scales ranging either from 0 (low) to 9 (high) or 1 (low) to 9 (high). Participants also answered several items about their feeling states for mood on a 7-point semantic differential scales (e.g., happy-sad, strong-weak). Participants carried ESF logbooks for the week sampled, with each logbook containing enough ESFs for students to respond to eight signals each day of the week. Further details regarding ESM procedures can be found in Csikszentmihalyi and Schneider (2000).

Dependent Measures

Student engagement. The primary measure of student engagement was derived from three items on the ESF that assessed concentration ("How well were you concentrating?"), interest ("Did you find the activity interesting?") and enjoyment in an activity ("Did you enjoy what you were doing?"). A composite engagement

score averaged these three variables because the simultaneous experience of concentration, interest, and enjoyment is the central phenomenological feature of flow experiences. High levels of concentration, enjoyment, and interest were not routinely experienced together ($\alpha = 0.47$ in this study), but flow theory would predict that identifying contexts in which they are experienced simultaneously may hold an important key to understanding student engagement. Nevertheless, given the moderate internal consistency of the global indicator, each component of engagement was tested and reported separately.

Attention. A dichotomous measure of attention was based on the ESF item, "What were you thinking while you were beeped?" Responses were coded as either academic or nonacademic thoughts while engaged in different classroom activities. Academic thoughts included thinking about a school subject (e.g., math), an activity (e.g., taking notes), or other thoughts related to schooling. Nonacademic thoughts included those related to oneself, friends, romantic interests, eating, going home, or nothing at all.

Quality of experience factors. Participants rated the quality of their subjective experience at the time that they were beeped on the Likert-type scales. These ratings were made on 25 separate items on the ESF. A subsequent factor analysis was performed on these 25 items to provide a more parsimonious interpretation of the results. Four factors were identified with eigenvalues over 1.4. The first factor was Mood (e.g., participants' overall emotional state) with top loading components including: active ($l_1 = 0.78$), sociable ($1_1 = 0.76$), strong ($1_1 = 0.74$), happy ($l_1 = 0.70$), and proud ($1_1 = 0.69$). The second derived factor was Esteem (e.g., self-assessment of worth, ability, accomplishments, success in meeting expectations, and control during classroom situations), with top loading components including: meeting expectations of self ($1_2 = 0.76$), succeeding ($1_2 = 0.68$), meeting expectations of others ($1_2 = 0.65$), control ($1_2 = 0.61$), skill ($1_2 = 0.60$), and feeling good about self ($1_2 = 0.60$). The third factor was Academic Intensity (e.g., the challenge and importance found in classroom activities and the amount of concentration demanded), with top loading components including: challenge ($1_3 = 0.86$), easy ($1_3 = -0.83$), importance to future goals ($1_3 = 0.66$), concentration ($1_3 = 0.57$), and importance to self ($1_3 = 0.55$). Finally, the fourth factor was Intrinsic Motivation (e.g., interest, enjoyment, and desire to engage in an activity), with top loading components including: interest ($1_4 = 79$), wish doing something else ($1_4 = -0.75$), and enjoyment ($1_4 = 0.71$). The items comprising each derived factor were combined to form a composite variable, with alphas for the factors ranging from 0.77 (Intrinsic Motivation) to 0.85 (Mood).

Independent Measures

Challenge, skill, and the challenge/skill conditions. Measures of challenge and skill were derived from responses to the request, "Indicate how you felt about the main activity." From this request, participants then rated their perceived challenge

of the activity and the skills necessary to complete the activity. Based on flow theory, four challenge/skill conditions were then created: (a) apathy (i.e., low challenge, low skill); (b) relaxation (i.e., low challenge, high skill); (c) anxiety (i.e., high challenge, low skill), and (d) flow (i.e., high challenge, high skill).

Instructional relevance and control. The measure of perceived relevance averaged responses to the questions: "Was this activity important to you?" and "How important was it in relation to your future goals?" ($r = 0.60$). Perceived control was measured from the question "Did you feel in control of the situation?" Choices ranged from 0 (low) to 9 (high).

Measures of classroom activities and school subject. When signaled, students provided responses to the open-ended ESF question, "What was the main thing you were doing as you were signaled?" Although there was a wide range of responses provided, the most frequent classroom activities were individual work ($n = 406$); listening to a lecture ($n = 381$); taking exams ($n = 225$); watching television, films, or videos ($n = 128$); and group work ($n = 103$), which combines group work and lab activities. In this case n refers to the number of ESFs submitted in a particular activity, not the number of participants engaged in the activity. Because participants were beeped randomly, duration of engagement in each activity (both in total and before the student was beeped) was not known but varied randomly. The coded response on the ESF question, "Where were you as you were signaled?" was used to determine which school subject students were attending as they were signaled. The most commonly reported subjects were English ($n = 697$), math ($n = 571$), science ($n = 614$), history ($n = 220$), foreign language ($n = 353$), social science ($n = 377$), computer science ($n = 96$), art ($n = 295$), and vocational education ($n = 241$), which were analyzed in this study.[1]

Procedure

To implement the ESM, pre-programmed wristwatches randomly signaled participants eight times daily at different intervals from 7:30 a.m. through 10:30 p.m. over the course of one 7-day week. Participants completed the ESF each time they

[1] The following combinations of class types were constructed in order to derive the classifications of school subjects. English combines English, English composition, literature, and reading. Science combines general science, biology, chemistry, physics, and earth science. Social science/studies combines political science, civics, geography, world culture, psychology, social studies, sociology, anthropology, and ethnic/multicultural studies. Computer Science combines computer science and programming. Art combines music, fine art, photography, drafting, graphics, applied art, and drama. Vocational Education combines agriculture, shop, vo-tech, domestic arts, home economics, business skills, and career exploration/counseling. *N* refers to the number of ESFs submitted during each school subject, not the number of participants in each subject.

were signaled.[2] In our sample of 526 students, we analyzed 3,630 responses that occurred in a classroom context, which averaged to 6.9 responses per student. ESM data were coded by trained coders using a detailed coding scheme. Inter-coder agreement was computed using Cohen's Kappa, which ranged between 0.86 and 0.97 for all codes.

Analyses of ESM Data

Time use. To estimate time use in classrooms, we calculated the percentage of beeps reported in one activity compared to total beeps in all possible activities of interest (e.g., 250 beeps reported while in one type of class activity out of a total of 1,000 beeps reported in all class activities equals 25 %).

Z scores. To estimate a participant's overall level of engagement in classrooms and in subsequent analyses, raw ESM scores were analyzed as well as their conversion into z scores. The standardized z scores are measured relative to each student's individual experience throughout the week, (i.e., a score of 0 on a variable would be considered as average enjoyment in a given context, while a score of -1 indicates the student's level of enjoyment is one *SD* below his or her average). In this regard, z scores are more sensitive to the effect of context on students' quality of experience. This sensitivity was considered desirable for a study of classroom contextual factors on student engagement.

Statistical tests. Because all ESM scores were treated as independent variables, one-way ANOVAs were used as the primary statistical test, with Duncan's Multiple Range Test serving as the post hoc statisitic for significant results. T-tests and chi-square analyses were also utilized. For analyzing the effects of the four challenge/skill conditions (i.e., apathy, anxiety, relaxation, and flow), "high" challenge and "high" skill was defined as z scores on each variable over 0 (i.e., experiences in which challenge was above each individual's own mean), and "low" challenge and "low" skill was defined as z scores less than 0 (i.e., experiences in which challenge and skill were below each individual's own mean). This method is the most common way of defining high versus low challenge and skills for the purpose of creating challenge/skill conditions associated with flow theory (e.g., Massimini and Carli 1988).

[2] Signaling participants after school and on the weekend was considered important to compare the quality of classroom experiences in various contexts with a variety of contexts outside of school (e.g., under what conditions are students in classrooms as engaged as when in activities outside of classrooms?).

Table 24.1 The interaction of challenge and skill on student engagement and quality of experience in high school classrooms (Z score means)

	Apathy	Relaxation	Anxiety	Flow	χ^2/*F*-test
Engagement	-0.329^{a}	-0.091^{b}	-0.124^{b}	0.223^{c}	83.12***
Interest	-0.332^{a}	-0.083^{b}	-0.149^{b}	0.239^{c}	52.71***
Concentration	-0.291^{a}	-0.080^{b}	0.363^{c}	0.558^{d}	144.29***
Enjoyment	-0.371^{b}	-0.108^{c}	-0.583^{a}	-0.135^{c}	49.91***
Attention	42 %	49.7 %	69.9 %	73.1 %	229.57***
Mood	-0.234^{a}	-0.030^{b}	-0.220^{a}	0.140^{c}	28.61***
Esteem	-0.330^{b}	0.124^{c}	-0.391^{a}	0.148^{c}	181.48***
Intensity	-0.261^{a}	-0.179^{b}	0.405^{c}	0.510^{d}	555.84***
Motivation	-0.372^{a}	-0.146^{b}	-0.443^{a}	-0.041^{c}	52.34***

Note Within each row, superscripts denote statistically separate categories according to Duncan's multiple range test (d > c > b > a). Apathy = low challenge and low skill, Relaxation = low challenge and high skill, Anxiety = high challenge and low skill, Flow = high challenge and high skill. Sample sizes reflect the number of ESM responses, not individuals, in each activity

Results

How Students Spent Their Time in High School Classes

The two highest percentage activities in which students were engaged were individual work (23 %) and listening to lectures (21 %). When combined with taking notes (10 %), and doing homework or studying (7 %), the majority of students' instructional time largely involved noninteractive activities. Students also spent 13 % of their time taking exams and 7 % of their time watching television or a video. Beyond these major spheres of classroom activity, small amounts of time were spent more interactively, in discussion (9 %) and group or lab work (6 %). Little time was spent talking with the teacher individually (1 %). The remaining 4 % was spent on other activities, such as watching demonstrations and giving presentations.

Phenomenological Influences on Student Engagement

Relationship between challenge/skill conditions and engagement. *T*-tests were first conducted with the challenge and skill items split at the median (i.e., high vs. low) and used as the grouping variable (challenge, $Mdn = 0.36$, $N = 3{,}487$; skill, $Mdn = 0.14$, $N = 3{,}469$).[3] The perception of high challenge was associated with higher engagement than the perception of low challenge, $t(3{,}418) = 9.83$, $p < 0.001$.

[3] *N* refers to the number of beeps or experiences, not individuals.

Further, when students perceived their skill level as high, they also reported higher engagement $t(3{,}410) = 10.89$, $p < 0.001$. In addition to the separate effects of challenge and skill on engagement, flow theory contends that the combination of challenge and skill would differently influence engagement as well. Thus, average z scores across the four challenge/skill conditions (i.e., apathy, relaxation, anxiety, and flow) were compared. Table 24.1 presents the results of an ANOVA performed on all dependent measures. Results revealed a significant main effect for the engagement composite score $F(3, 3401) = 83.12$, $p < 0.001$. The highest level of engagement was reported in the flow condition, while students reported being the least engaged in the apathy condition. Significant main effects were also obtained for the subcomponents of engagement: interest $F(3, 3{,}467) = 52.71$, $p < 0.001$, concentration $F(3, 3{,}467) = 144.29$, $p < 0.001$, and enjoyment $F(3, 3{,}467) = 49.91$, $p < 0.001$. With the exception of the enjoyment z score during flow and relaxation (which were not significantly different), students participating in activities that contained high challenges but also required higher developed skills also reported greater interest, concentration, and enjoyment in the activity.

Relationship challenge/skill conditions on attention. Similar patterns emerged when examining the effect of the challenge/skill conditions on students' attention. Given that the attention variable was dichotomously scored, a cross-tabulation of attention with the four challenge/skill conditions was compared. The effect of the challenge/skill conditions on attention was significant, $\chi^2(3, N = 3{,}417) = 229.57$, $p < 0.001$. In the flow condition, participants reported attending to instruction 73 % of the time, as opposed to the apathy condition (i.e., challenge and skills are low), when participants were attending to instruction approximately 42 % of the time. In the anxiety and relaxation conditions, participants reported attending to instruction 70 and 58 %, respectively.

Relationship of challenge/skill conditions on quality of experience. Challenge/skill conditions also appeared to exert a strong influence on other measures of students' quality of experience, including mood $F(3, 3{,}467) = 28.61$, $p < 0.001$, esteem $F(3, 3{,}467) = 181.48$, $p < 0.001$, intensity $F(3, 3{,}467) = 555.84$, $p < 0.001$, and motivation $F(3, 3{,}467) = 52.34$, $p < 0.001$. All measures of students' quality of experience were reported to be highest in the flow condition and lowest in the apathy condition, with the exception of esteem, where experiences in the relaxation condition were not significantly different than students in the flow condition.

The effect of control and relevance on quality of experience. The effect of perceived control and relevance on engagement were also examined, with the median split for each variable serving to distinguish the "high" and "low" categories (control, $Mdn = -0.21$, $N = 3{,}483$; relevance, $Mdn = 10$, $N = 3{,}455$). Students reported feeling significantly more engaged $t(3{,}407) = 13.74$, $p < 0.001$, and experiencing higher esteem $t(3{,}361) = 28.23$, $p < 0.001$, and mood $t(3{,}226) = 14.78$, $p < 0.001$, when experiencing high versus low control over situations. Students also reported higher engagement $t(3{,}406) = 19.57$, $p < 0.001$ when instruction was perceived as having high versus low relevance. The

Table 24.2 Means and ANOVA results for engagement and quality of experience in five common classroom activities

Variable	Lecture	TV/ video	Exam	Individual work	Group work	χ^2/F-test
Engagement	5.34^{a}	5.44^{a}	5.54^{a}	5.98^{b}	6.18^{b}	6.48***
Interest	4.60^{a}	4.80^{b}	4.20^{a}	4.94^{bc}	5.46^{c}	5.21***
Concentration	6.49^{b}	5.89^{a}	8.48^{d}	7.43^{c}	7.34^{c}	33.98***
Enjoyment	4.90^{b}	5.59^{c}	3.95^{a}	5.55^{c}	5.84^{c}	14.73***
Attention	65.3 %	57.1 %	83.0 %	77.9 %	75.2 %	43.49***
Mood	4.11^{a}	4.30^{ab}	$4.41b^{c}$	4.59^{cd}	4.66^{d}	13.48***
Esteem	6.57^{a}	0.66^{ab}	6.94^{ab}	6.90^{ab}	7.04^{b}	2.92*
Intensity	5.05^{b}	3.86^{a}	6.63^{d}	5.78^{c}	5.67^{c}	56.93***
Motivation	4.19^{b}	4.51^{bc}	3.58^{a}	4.59^{bc}	4.86^{c}	9 96***
N	381	128	225	406	103	–

Note Within each row, superscripts denote statistically separate categories according to Duncan's multiple range test (d > c > b > a). Sample sizes reflect the number of ESM responses, not individuals, in each activity. The maximum score was 9

perception of high relevance was also associated with higher academic intensity $t(3,443) = 47.17$, $p < 0.001$.

Relationship of instructional method factors on engagement Table 24.2 presents the results of a one-way ANOVA performed on engagement during the five different classroom activities. There was a significant effect of instructional method on engagement $F(4, 1,238) = 6.48$, $p < 0.001$. Students reported higher engagement during group work and individual work than while taking exams, watching television or videos, or listening to lectures. Significant effects were also noted for all subcomponents of engagement: interest $F(4, 1,238) = 5.21$, $p < 0.001$, concentration $F(4, 1,238) = 33.98$, $p < 0.001$, and enjoyment $F(4, 1,238) = 14.73$, $p < 0.001$. As with the engagement composite score, students reported higher interest in individual and group work activities (although interest in television/video instruction was comparably high as well). As expected, concentration was highest during examinations, but was also significantly higher for individual and group work activities than lecture and television/video instruction. Finally, higher enjoyment ratings were provided during television/video instruction, and individual and group work activities than lecture activities and examinations.

Relationship of instructional method on attention. A cross-tabulation of attention and the five instructional methods also yielded a significant effect, $\chi^2 (3, N = 1,238) = 43.49$, $p < 0.001$. Students reported paying attention 83 % of the time when taking exams, 78 % of the time during individual work, and 75 % of the time during group work. By comparison, they were paying attention less frequently while listening to the teacher lecture (65 %) and while watching TV or a video (57 %),

Relationship of instructional method on quality of experience. Table 24.2 also presents ANOVA results comparing several experiential measures across the same activities. There was a significant effect of instructional method on mood $F(4, 1{,}207) = 13.48$, $p < 0.001$, esteem $F(4, 1{,}207) = 2.92$, $p < 0.05$, intensity $F(4, 1207) = 56.93$, $p < 0.001$, and motivation $F(4, 1{,}204) = 9.96$, $p < 0.001$. Students reported a higher quality of experience on all measures during individual and group work versus listening to lectures. When taking exams, students reported the highest level of academic intensity but the lowest level of motivation compared to other activities. On the other hand, students reported relatively high motivation, but low intensity, while watching television or videos. Individual or group work activities corresponded to the highest mood level, and also corresponded to high motivation.

School Subject Factors

Relationship of school subject on engagement. Results from a series of one-way ANOVAs (see Table 24.3) revealed a significant effect of school subject on the engagement composite $F(8, 3{,}332) = 6.49$, $p < 0.001$. Students reported the highest level of engagement in art and computer science, followed by vocational education and social studies. Thus, for the most part students reported being more engaged in their nonacademic subjects (i.e., computer science, art, and vocational education) than in their academic subjects. Significant differences were also obtained for the sub-engagement components interest $F(8, 3{,}332) = 4.81$, $p < 0.001$ and enjoyment $F(8, 3{,}332) = 16.39$, $p < 0.001$, but not concentration $F(8, 3{,}332) = 0.78$. Significantly higher interest and enjoyment scores were reported during computer science and art than other school subjects.

Relationship of school subject on attention. A cross-tabulation of attention and school subject also yielded significant results, $\chi^2(3, N = 3{,}332) = 29.85$, $p < 0.001$. Students reported paying attention most frequently in math (65 %), science (65 %), and computer science class (65 %), and least frequently in history (58 %). English (57 %), and social studies (53 %).

Relationship of school subject on quality of experience. School subject also exerted a significant effect on mood $F(8, 3{,}332) = 4.70$, $p < 0.001$, intensity $F(8, 3{,}332) = 6.21$, $p < 0.001$, $p < 0.001$ and motivation $F(8, 3{,}332) = 10.80$, $p < 0.001$. Students reported that participating in art classes increased their mood and motivation more than participating in other courses, but it was not an intense subject. Conversely, math and computer science classes were reported as being the most intense but not necessarily the most motivating subjects for students. Although the distribution of mean scores across subjects precludes any simple interpretation of the pattern of scores, students in general reported their academic classes to be more intense (i.e., challenging and important), but their nonacademic courses more intrinsically motivating.

Table 24.3 Means and ANOVAs for student engagement and quality of experience in school subjects

Variable	Math	English	Science	Foreign language	History	Social studies	Computer science	Art	Vocational education	X^2/F-test
Engagement	5.35[a]	5.64[ab]	5.62[ab]	5.55[ab]	5.39[ab]	5.74[abc]	6.05 [cd]	6.35[d]	5.89[bc]	6.49***
Interest	4.43[a]	4.79[abc]	4.74[abc]	4.53[ab]	4.56[ab]	4.99[bc]	5.10 [cd]	5.47[d]	4.81[abc]	4.81***
Concentration	6.65[a]	6.52[a]	6.72[a]	6.74[a]	6.70[a]	6.38[a]	6.71[a]	6.56[a]	6.75[a]	0.78
Enjoyment	4.92[a]	5.60[bc]	5.37[ab]	5.34[ab]	4.92[a]	5.87[bcd]	6.24[d]	6.99[a]	6.11 [cd]	16.39***
Attention	65.2 %	56.7 %	65.0 %	63.8 %	57.6 %	52.8 %	64.6 %	56.0 %	58.2 %	29.85***
Mood	4.36[a]	4.43[a]	4.32[a]	4.44[a]	4.27[a]	4.48[ab]	4.64[b]	4.72[c]	4.65b[c]	4.70***
Esteem	6.62[ab]	6.74[abc]	6.68[abc]	6.70[abc]	6.60[a]	6.80[abc]	6.83[abc]	6.96[bc]	6.99[c]	1.80
Intensity	5.53[c]	4.81[a]	5.16[ab]	5.01[ab]	4.98[ab]	4.82[a]	5.27[bc]	5.09[ab]	4.84 [a]	6.21***
Motivation	4.16[a]	4.56[abc]	4.46[ab]	4.32[a]	4.22[a]	4.80[bc]	4.84[bc]	5.47[d]	4.92[c]	10.80***
N	571	697	614	353	220	377	96	295	241	–

Note Within cacti row, superscripts denote statistically separate categories according to Duncan's multiple range test (d > c > b > a). Sample sizes reflect the number of ESM responses, not individuals, in each activity. The maximum score was 9

Discussion

Data obtained from this study yielded a number of interesting findings. The results showed that students spend approximately one-third of their time passively attending to information transmitted to the entire class (i.e., listening to a lecture, watching television or a video). More than half of their instruction time was spent on independent work that was somewhat active, structured, or intellectually challenging for at least some of the time (e.g., individual work, taking an exam, studying or doing homework, or listening and taking notes). Approximately 14 % of students' time in class was spent in more interactive activities, such as class discussions and group activities. The abundance of lectures, taking notes, and watching videos makes for a narrow range of classroom activities that leaves little room for active engagement. An interesting question becomes how students can be expected to reach adult goals of participation, belongingness, and identification with school (Finn 1989) when active and meaningful participation is not consistently invited in classrooms.

Phenomenological aspects of instruction appeared to have profound effects on students' engagement, particularly with respect to how the challenge of the activity and the skills needed to complete the activity are balanced. Perceived control and relevance of the activity were also noted as important contributors to engagement. These findings collectively suggest that student disengagement may stem from a lack of challenge or meaning, which was reported to typically occur in the lecture format (i.e., teacher-initiated instruction). Given the importance of challenge, skill, and relevance of instruction to overall engagement, teachers may be able to enhance engagement by supporting students' sense of competency and autonomy, such as providing tasks that offer choice, are connected to students' personal goals, and offer opportunities for success. However, it is important to emphasize that providing curricular tasks that are too easy does not appear to be an effective strategy for facilitating student engagement any more than giving students tasks that are too difficult. Optimal engagement appears to be promoted by a moderate difference between the challenge of a task and an individual's skills. Individuals naturally learn by mastering skills one step beyond one's current skills; nevertheless, the challenge for teachers is to provide tasks slightly too difficult to master at one's present skill level, but that can be mastered with the acquisition of new skills. Thus, engagement in many respects is akin to working within students' *zones of proximal development* (Rogoff 1990) to ensure that engagement is first established and subsequently maintained.

Students reported being more engaged during individual and group work than while listening to a lecture, watching TV/video, or taking a test. Lecture recitation is among the most common teaching formats, and one in which the student is relatively anonymous and inactive. During lecture recitation, the locus of control remains firmly with the teacher; hence, lecture recitation may be viewed as both a formal and controlling mode of instruction in which the teacher dominates the classroom (Bidwell and Kasarda 1980). Some research has indicated that the more

teachers lecture, the fewer opportunities students have to become engaged and attempt to learn the material themselves (Mitchell 1993). With respect to test taking, the low levels of enjoyment and interest that students reported while taking tests is consistent with research linking the expectation of taking an examination with decreases in intrinsic motivation (Benware and Deci 1984). In contrast, numerous studies have documented positive effects of cooperative learning activities and group activities on students' interest, engagement with learning, and other motivational-related factors (see Johnson and Johnson 1985). Despite the emphasis that has been placed on the benefits of cooperative learning activities (Slavin 1983), this study suggests that individual work can be equally engaging as group work from the perspective of flow theory.

Perceptions of challenge and relevance are associated with students' concentration, interest, and attention. This association is referred to as academic intensity. Relatedly, perceptions of high competence and autonomy are associated with significant increases in mood, enjoyment, esteem, and intrinsic motivation. We refer to this association as positive emotional response. Both academic intensity and a positive emotional response appear to be integral parts of optimal engagement in classrooms. Many classroom activities and school subjects, however, appeal to students in terms of either creating academic intensity *or* positive emotional responses. For example, students reported that taking exams was challenging and demanded concentration, but was not necessarily enjoyable. Although students may understand the importance of their performance on tests, this emphasis on performance (which may lead to social comparison) may undermine intrinsic interest and enjoyment. Conversely, students reported high enjoyment when watching television and videos, but also reported that those activities were significantly lower in terms of concentration and intensity. Interestingly, listening to lectures appeared to lack academic intensity and did not provoke a positive emotional response. Other activities, such as individual and group work, frequently combined both aspects of engagement. Such instances were associated with a psychological state similar to flow experiences, in which concentration, enjoyment, and interest were all high.

Similar patterns with respect to academic intensity and positive emotional experiences were noted for certain school subjects and instructional activities. For example, students reported that math was one of the most academically intense experiences, rating it as the most challenging and relevant. However, students appeared to feel more negatively about math than other subjects. On the other hand, art, which was the subject participants expressed enjoying the most, was also reported to be the least relevant to participants and their future goals. In general, students reported nonacademic subjects as more engaging than academic ones, particularly in terms of positive emotions. Goodlad (1984) also found that high school students reported liking their nonacademic subjects more than their academic subjects. Computer science appeared to be a rare example of a subject that students reported to be academically intense as well as intrinsically motivating.

In summary, the results of the present study suggest that activities that are academically intense and foster positive emotions stand the best chance of

engaging students. Ideally, teachers may develop activities that arc experienced as challenging and relevant, yet also allow students to feel in control of their learning environment and confident in their ability. These are activities in which students concentrate, experience enjoyment, and are provided with immediate, intrinsic satisfaction that builds a foundation of interest for the future. Teachers succeeding in providing such engagement most likely consider not only the knowledge and skills to be learned, but also the students as learners, adapting instruction to their developmental levels and individual interests.

Limitations

Readers should bear in mind several important limitations of the study. First, this study relied on self-report data, which is ideal for studying students' subjective experiences but vulnerable to errors including problems with memory, hasty completion, exaggeration, and deliberate falsification. Second, some of the results may have been influenced by response bias (e.g., the underrepresentation of males and Latinos). Thus, there is increased concern that those who responded are somehow different from those who did not respond. Third, results from this study are mainly correlational, making inferences regarding causality speculative even if informed. Fourth, analyses performed on the beep level, while not substantially affecting the means reported, conflate the standard error of measurement, and thus the actual significance levels reported may be too high. Fifth, this study does not directly examine a critical influence on classroom engagement—the teacher—who is directly responsible for making instructional choices. Finally, this study did not take into account students' developmental levels, educational histories, specific learning skills, and expectations for success. All of these individual factors are undoubtedly important when selecting tasks conducive to engagement.

Suggestions for Future Research

A number of suggestions for future research emerge from this study. First, it would be desirable to know how the interaction of various task characteristics affects engagement. For example, would students feel engaged when assigned highly relevant tasks that are their choice but too easy or difficult? Second, ESM studies would be enhanced by observing teachers and students in classrooms systematically. Research relating to engagement of youth should also be expanded beyond school to include after school and weekend activities such as performing hobbies, engaging in social or leisure activities, or utilizing the Internet. Longitudinal designs that evaluate how motivation and engagement change over time and interact with developmental factors are greatly needed.

Although the principles of instruction suggested by this study are intuitively appealing and corroborate much previous research (Stipek 1996), analyses regarding time use and instructional methods suggest that these principles are not easy to implement in the classroom. The model of instruction in which learning is expected to occur by transmitting information to the entire class is slow to change. It takes a great deal of skill, training, and experience to implement many of the suggested principles. Providing opportunities for interaction and participation appropriate for each student's ability level may be particularly challenging with students who have diverse interests and learning needs. However, providing instruction that engages students is a challenge worth achieving, and with the necessary instructional skills, can become a rewarding and flow-inducing experience that produces positive educational outcomes for learners.

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