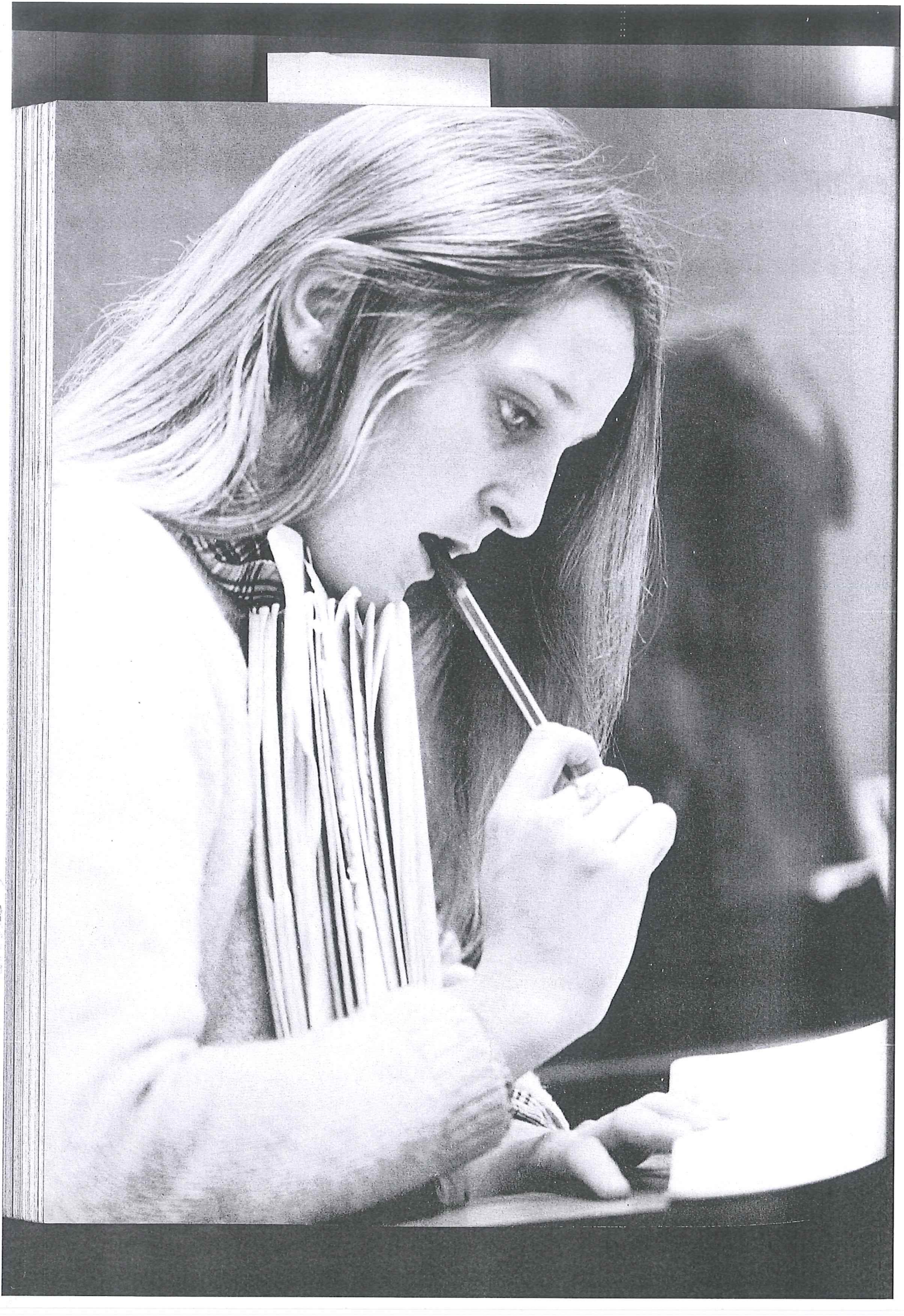
CHAPTER 15
INTELLECTUAL DEVELOPMENT IN ADOLESCENCE



In spite of all my theories, and however much trouble I take, each day I miss having a real mother who understands me. That is why with everything I do and write I think of the "Mumsie" that I want to be for my children later on. The "Mumsie" who doesn't take everything that is said in general conversation so seriously, but who does take what I say seriously.

—*Anne Frank*, The Diary of a Young Girl, *1943*

Ninth-grader Jason is plagued by doubts about subjects he has always taken for granted. Suddenly he is aware of a swarm of "might bes" and "what ifs" that have made him unsure of what to believe about religion, politics—everything. He has questions he never thought of before and needs to resolve. So much seems possible; it is hard to know what is true.

In this chapter we examine the intellectual development of adolescents. As usual, we start out by examining the contribution of Piaget to our understanding of cognitive development. Piaget explains the development—formal operations—that underlies Jason's discovery of infinite possibility. We also look at adolescents' egocentrism and their moral development. Kohlberg's analysis of moral reasoning continues to rest on Piaget's pioneering work. The final part of the chapter explores practical aspects of intellectual growth—high school and dropping out of school, and the search for a career.

Aspects of Intellectual Development

PIAGET'S STAGE OF FORMAL OPERATIONS

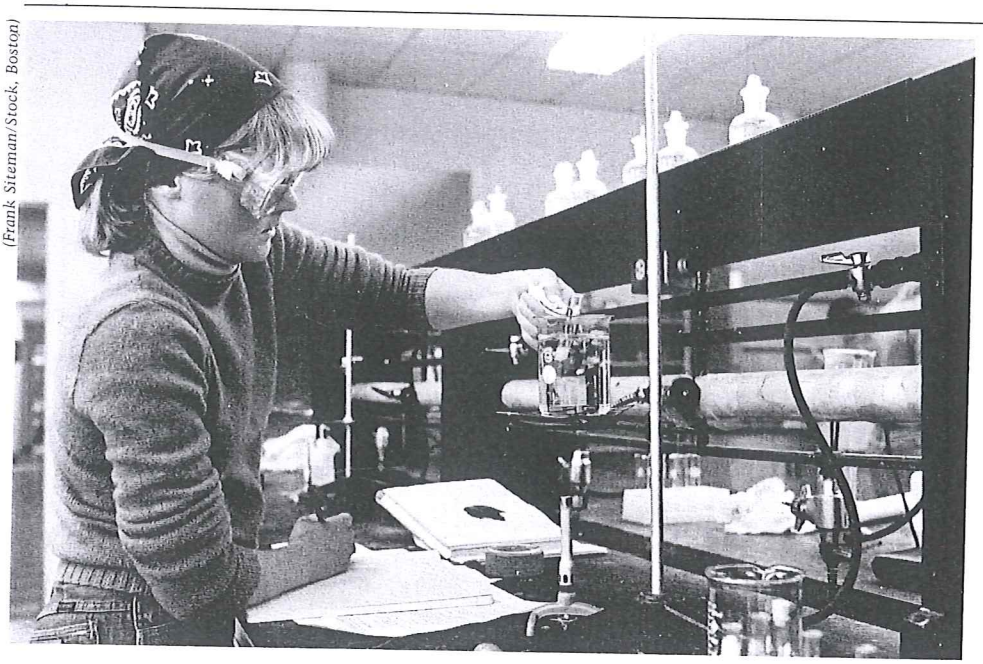
Formal operations *In Piaget's terminology, the final stage of cognitive development; it is characterized by the ability to think abstractly.*

Adolescents reach a new level of intellectual development, which Piaget calls ***formal operations***. Much of childhood appears to be a struggle to come to grips with the world as it is. The major element that puts adolescents' thinking on a higher level than children's thinking is the awareness of the world as it could be. Adolescents can now think in terms of "what if," or what might be true, rather than just in terms of what they can see in a concrete situation. Since they can imagine an infinite variety of possibilities, they are capable of hypothetical reasoning.

We can glimpse the nature of formal operations in different reactions to a story told by Peel (1967):

> Only brave pilots are allowed to fly over high mountains. A fighter pilot flying over the Alps collided with an aerial cable-way, and cut a main cable causing some cars to fall to the glacier below. Several people were killed.

A child still at the Piagetian level of *concrete operations* said, "I think that the pilot was not very good at flying. He would have been better off if he went on fighting." Only one answer springs to the lips of the child, one which assumes that the pilot was inept and not doing his real job, fighting. By contrast, a young person who had reached the level of *formal operations* paid no attention to the designation of fighter pilot and found a variety of possible explanations for what happened: "He was either not informed of the mountain



(Frank Siteman/Stock, Boston)

During adolescence, teenagers attain Piaget's formal-operations stage. Now that they can think abstractly and hypothetically, they can design scientific experiments.

railway on his route, or he was flying too low; also, his flying compass may have been affected by something before or after takeoff, thus setting him off course and causing the collision with the cable" (Peel, 1967).

The development from stage to stage can be traced by following Jason's progress in dealing with a classic Piagetian problem in formal reasoning, the *pendulum problem*. He is shown the pendulum, which consists of an object hanging from a string, and is then shown how he can change the length of the string, the weight of the object, the height from which the object is released, and the amount of force he can use to push it. He is then asked to determine which of these factors, either alone or combined with others, determines how fast the pendulum swings.

When Jason first saw the pendulum, he was not yet 7 years old. At that time he was unable to formulate a plan for attacking the problem but instead tried one thing after another in a hit-or-miss manner. First he pushed a long pendulum with a light weight, then he swung a short pendulum with a heavy weight, and then he removed the weight entirely. Not only was his method completely slapdash, but he couldn't even understand or report what had actually happened. He was convinced that his pushes made the pendulum go faster, and even though this was not so, he reported it as observed fact.

The next time Jason was faced with the pendulum, he was 11. His more advanced age showed in the way he tackled the problem this time. He did look at some possible solutions, and he even hit on a partially correct answer. But he failed to try out every possible solution in a systematic way. He varied the length of the string, and he varied the weight of the object, and he thought that both length and weight affected the speed of the swing. He was still failing to keep one dimension constant while he varied another.

Not until Jason and the pendulum met again, when he was 15, did he go

at his old friend in a thorough, well-organized manner. He now realized that any one of the four factors, or some combination of them, might affect the speed of the swing. So he carefully designed an experiment to test all the possible hypotheses, holding constant one factor while he varied another. By doing this, he was able to determine that one factor—the length of the string—is the only one that determines how fast the pendulum swings. (This description of age-related differences in the approach to the pendulum problem is adapted from Ginsburg & Opper, 1979.)

By solving the pendulum problem the way he did, Jason showed that he had arrived at the stage of *formal operations*, a cognitive level usually attained at about the age of 12. Jason can now think in terms of what might be true and not just in terms of what he sees in a concrete situation. Since he can imagine an infinite variety of possibilities, he is, for the first time, capable of hypothetical reasoning. Once he develops a hypothesis, he can then construct a scientific experiment to test that hypothesis and to deduce whether it is true. He is now capable of *hypothetical-deductive* reasoning. He considers all the possible relationships that might exist and goes through them one by one, to eliminate the false and arrive at the true. This systematic process of reasoning operates for all sorts of problems. People in the formal-operations stage are better equipped to integrate what they have learned in the past with their problems of the present and their planning for the future. They apply these thought processes to the mechanics of day-to-day living and also the construction of elaborate political and philosophical theories.

Both inner and outer changes in the lives of adolescents combine to bring about cognitive maturation, according to Piaget: their brain structures have matured and their social environments are widening, giving them more opportunities for experimentation. Interaction between the two kinds of changes is essential to reach the highest levels of cognitive development: even if young people's neurological development is sufficient to allow them to reach the stage of formal reasoning, if they have not been encouraged in this direction culturally and educationally, they may never attain this highest level and the final qualitative leap of cognitive development. (See "Around the World.")

In fact, Kohlberg and Gilligan (1971) report that almost half of American adults appear never to reach this stage at all. Their conclusions are based on several studies of the degree of success attained by people of various ages on different formal-operations tasks. In one experiment, for example, 265 persons were asked to solve the pendulum problem; the percentages of people of different ages who were successful are as follows:

- Ages 10 to 15: 45 percent
- Ages 16 to 20: 53 percent
- Ages 21 to 30: 65 percent
- Ages 45 to 50: 57 percent

It seems, then, that many adults don't reach the level of formal operations (at least as measured by the pendulum problem). We cannot conclude that an actual decline in the ability occurs, however, even though fewer 45- to 50-year-olds solved the problem than 21- to 30-year-olds. Cross-sectional studies let us see differences only between age groups, not changes with age. We would need to conduct longitudinal studies for that (as we noted in Chapter 1).

A CHILD'S WORLD . . .

AROUND THE WORLD

Scientific thinking is a historically recent phenomenon in western society and is still not common in much of the third world. Surveys indicate that a substantial minority of Americans never attain Piaget's formal-operations stage. Can people in the third world, who encounter so many fewer models of scientific thinking, hope ever to attain the formal-operations stage? Here are some recollections of a former Peace Corps volunteer:

"I taught science for several years in a remote village of Tanzania (east Africa). My students were children in primary school, aged from about 12 to 16. Most of their parents were illiterate subsistence farmers, and most of them expected to be farmers as well. Their homes were almost all mud structures without electricity. Many, perhaps most, of my students had never been more than 7 miles away from their birthplace. They were familiar with intelligent and shrewd adults, but they knew little of scientific processes or achievements.

"As a science teacher, my basic goal was promoting experimental thinking. The school had no scientific equipment beyond a few test tubes and chemistry flasks, and it had absolutely no money. I used to buy any candles that appeared in the village shops to use as bunsen burners. My classroom technique was to distribute whatever materials I had and to tell the students to perform an experiment, any experiment, with the stuff. Usually somebody would find something to do, and the other students would then follow the leader's example.

"Once I distributed candles and ice cubes. None of the students had ever touched ice before and were shocked by its temperature. But they were a game lot and soon set themselves to holding ice in the candle flame, watching the ice turn to water.

"Unfortunately, the experiment also produced smoke, and the students all noticed a quick empirical proof that the smoke came from the ice: take the ice out of the candle, and the smoke disappeared. Since the point of the experiment was to show that ice and water are the same thing, the smoke confused matters. But then one of the students, on his own, for I was stumped, found a way to show that the smoke came from the candle. He held a ruler over the seemingly smokless candle, and it was soon covered with smoke. As he explained to his classmates, 'The ice just makes the smoke easier to see.'

"After that experience I never again entertained serious questions about the ability of unsophisticated village students to master a scientific method. Indeed, by the end of my first year I heard students use the word *experiment* among themselves as they tried to solve various practical problems around the school.

"I conclude that attainment of formal operations is possible by members of nonscientific cultures, if they are given practice at thinking scientifically."

Source: E. B. Bolles.

We see, though, that by late adolescence most people are capable of abstract thought, which opens many new doors. It enables them to analyze political and philosophical doctrines, and sometimes to construct their own elaborate theories, with an eye to reforming society.

The ability to think abstractly has emotional ramifications too. "Whereas earlier the adolescent could love his mother or hate a peer, now he can love freedom or hate exploitation. The adolescent has developed a new mode of life: the possible and the ideal captivate both mind and feeling" (Ginsburg & Opper, 1979, p. 201).

EGOCENTRISM

The discovery of ideals is a well-known—sometimes inspiring, sometimes maddening—trait of adolescence. It can inspire many adults to see the energy

(Mimi Cotter/International Stock Photo)

If anything drives parents of teenagers mad, it is adolescents' egocentrism—their refusal to take seriously viewpoints that are not their own. If anything maddens teenagers, it is their parents' refusal to respect their point of view.

and vitality that adolescents bring to the quest for what ought to be, or it maddens them to see young people condemn a practical compromise between idealistic aspirations and realistic necessities. Elkind (1984) describes some adolescent behaviors and their underlying thinking processes:

- *Finding fault with authority figures.* Young people have a new ability to imagine an ideal world. As they do so, they realize that the people they had once worshiped as nearly perfect fall far short of their ideal, and they feel compelled to try to bring reality closer to fantasy by pointing out all the shortcomings they notice. Parents who don't take this criticism personally, but rather look at it as a necessary stage in their teenagers' cognitive and social development, will be able to answer such comments matter-of-factly, indicating that nothing—and nobody (not even a teenager!)—is perfect.
- *Argumentativeness.* Adolescents want to practice their new ability to see the many nuances in an issue. If adults encourage and take part in arguments about principles, while carefully avoiding discussion of personality factors, they can help young people stretch their reasoning ability without getting embroiled in family feuding.
- *Self-consciousness.* A boy who hears his parents whispering "knows" that they're talking about him, and a girl who passes a couple of boys laughing raucously "knows" that they're ridiculing her. The extreme self-conscious-

ness of young adolescents owes a great deal to the concept of the ***imaginary audience***. Adolescents can now put themselves into the mind of someone else—can think about someone else's thinking. Since they have trouble distinguishing what is interesting to them from what is interesting to someone else, however, they assume that everyone else is thinking about the same thing they are thinking about—themselves. They create an imaginary audience, an observer who is as concerned with their thoughts and behavior as they are themselves. A study which confirmed that the imaginary audience is particularly influential in early adolescence assessed how students in the fourth, sixth, eighth, and twelfth grades would react in such situations as finding a grease spot on their clothes at the beginning of the most exciting dress-up party of the year and being asked to get up in front of the class to talk. The eighth-graders—especially girls—turned out to be more self-conscious than the older and younger students and less willing to speak to an audience (Elkind & Bowen, 1979).

Imaginary audience *An observer who exists only in the mind of an adolescent and who is as concerned with the adolescent's thoughts and behaviors as the adolescent is.*

The imaginary audience stays with us to a certain degree in adulthood. Who among us, for example, hasn't agonized over what to wear to an event, thinking that everyone else will actually care what clothes we have on—and then realized that most people were so busy thinking about the impression *they* were making that they hardly noticed our carefully chosen outfit at all! This kind of self-consciousness is especially agonizing in adolescence, however, and therefore Elkind emphasizes the importance of adults' avoiding any public criticism or ridicule of young teenagers.

- *Self-centeredness.* The conviction that we are special, unique, and not subject to the natural rules that govern the rest of the world, which Elkind terms the ***personal fable***, is also particularly strong in early adolescence. It accounts for a great deal of self-destructive behavior that occurs, since teens think that they're magically protected from harm. A girl thinks that she can't get pregnant; a boy thinks that he can't get killed on the highway; teenagers who experiment with drugs think that they can't get hooked. "These things happen only to other people, not to me," is the unconscious assumption that helps explain much of adolescents' risk-taking. The task for young people is to maintain a sense of specialness while developing a realistic awareness of the ways in which they are not exempt from the natural order of things.

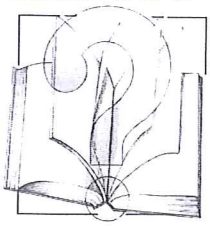
Personal fable *A conviction, typical of an adolescent, that he or she is special, unique, and not subject to the rules that govern the rest of the world.*

- *Indecisiveness.* Teenagers have trouble making up their minds about even the simplest things because they are suddenly aware of the multiplicity of choices in virtually every aspect of life.
- *Apparent hypocrisy.* Young adolescents often don't recognize the difference between expressing an ideal and working toward it. Thus they can march against pollution while littering the environment. Part of growing up involves the realization that "thinking does not make it so," that values have to be acted upon to bring about change.

The more adolescents talk about their personal theories and listen to those of other people, the sooner they arrive at a mature level of thinking (Looft, 1971). As the thought processes of adolescents mature, they are better able to think about their own identities, to form adult relationships with other people, and to determine how and where they fit into their society.

A CHILD'S WORLD . . .

AND YOU



Although most people eventually abandon adolescent idealism in favor of a more realistic viewpoint, not all do. Should they? On the scale below, where would you place yourself between the extremes?

VALUES SCALE

1 2 3 4 5 6 7 8 9 10

Scorning all authority figures because they must have "feet of clay"

Honoring all authority figures because of their position

Defending and insisting upon acting on every passing whim, while denouncing the opinions and tastes of others

Never challenging another's viewpoint, even when it goes against one's deepest beliefs and values

VALUES SCALE

1 2 3 4 5 6 7 8 9 10

Never making up one's mind

Never having any doubts

Refusing to tolerate any challenges to social policies because the policies are well intentioned and would work if people only behaved themselves

Refusing to support any social programs to help people because inevitably they will fall short and assist a few scoundrels as well

MORAL DEVELOPMENT

It seems self-evident that no one can have a moral code based on ideals before acquiring a mind that is capable of imagining ideals. In Chapter 12 we discussed Lawrence Kohlberg's theory of moral reasoning, which he sees as a function of cognitive development. Development continues during adolescence as young people acquire the capacity to think abstractly and to understand universal moral principles. Advanced cognitive development does not guarantee advanced moral development, but—says Kohlberg—it must *exist* for moral development to take place.

Kohlberg and Gilligan (1971) assert that the progress to postconventional stages of moral thinking depends on appreciation of the relative nature of moral standards. Adolescents need to understand that every society evolves its own definition of right and wrong and that the values of one culture may seem shocking to another. Many young people discover relativistic arguments about morality when they enter college, which explains why college students are most likely to score at the postconventional level. (This stress on typical influences of college also explains why some critics say that Kohlberg's theories are elitist.)

Kohlberg's first two stages of moral reasoning (described in Chapter 12) generally characterize children's thought, although some delinquent adolescents—as well as other adolescents and adults—still think in terms of stage 2 precepts of self-interest. Most adolescents—like most adults—are at Kohl-

berg's conventional level of moral development (level 2). They conform to social conventions, are motivated to support the status quo, and think in terms of doing the right thing to please others or to obey the law. As we listen to "law and order" political campaign speeches, we realize how many adults are functioning at stage 4.

The different ways adolescents react to the moral dilemmas posed by Kohlberg illustrate the differences in their reasoning. In this theory, it's the reasoning underlying the conclusion a person reaches in response to a moral dilemma, not the conclusion itself, which indicates the stage of development that the person is in. With this in mind, let's look at the sequence of moral development in respect to the value of human life (Kohlberg, 1968):

Stage 1: When Tommy, 10, is asked, "Is it better to save the life of one important person or a lot of unimportant people?" he says, "All the people that aren't important because one man just has one house, maybe a lot of furniture, but a whole bunch of people have an awful lot of furniture. . . ."

He is confusing the value of people with the value of their property.

Stage 2: Tommy, 13, is asked whether a doctor should "mercy kill" a fatally ill woman requesting death because of pain. He answers, "Maybe it would be good to put her out of her pain; she'd be better off that way. But the husband wouldn't want it; it's not like an animal. If a pet dies you can get along without it—it isn't something you really need. Well, you can get a new wife, but it's not really the same."

He thinks of the woman's value in terms of what she can do for her husband.

Stage 3: At 16, Tommy answers the same question by saying, "It might be best for her, but her husband—it's a human life—not like an animal; it just doesn't have the same relationship that a human being does to a family. . . ."

He identifies with the husband's distinctively human empathy and love, but he still doesn't realize that the woman's life would have value even if her husband didn't love her or even if she had no husband.

Stage 4: At 16, another boy, Richard, answers by saying, "I don't know. In one way, it's murder; it's not a right or privilege of man to decide who shall live and who should die. God put life into everybody on earth, and you're taking away something from that person that came directly from God, and you're destroying something that is very sacred; it's in a way part of God, and it's almost destroying a part of God when you kill a person."

He sees life as sacred because it was created by God, an authority.

Stage 5: At 20, Richard says: "There are more and more people in the medical profession who think it is a hardship on everyone, the person, the family, when you know they are going to die. When a person is kept alive by an artificial lung or kidney it's more like being a vegetable than being a human. If it's her own choice, I think there are certain rights and privileges that go along with being a human being."

He now defines the value of life in terms of equal and universal human rights in a context of relativity, in a concern for the quality of that life, and out of concern for the practical consequences.

Stage 6: At 24, Richard answers," A human life takes precedence over any other moral or legal value, whoever it is. A human life has inherent value whether or not it is valued by a particular individual."

Richard now sees the value of human life as absolute and not because it is

derived from or dependent on social or divine authority. There is a universality to his thinking, which transcends cultural boundaries.

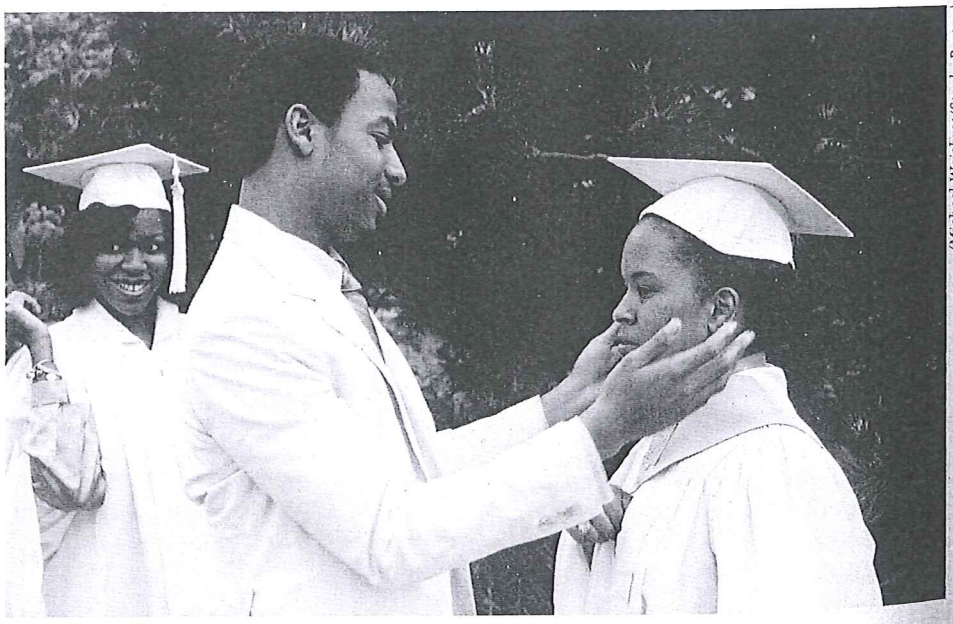
Research suggests that it's possible to help young people move to higher levels of moral reasoning. The most effective way to do this seems to be to give adolescents ample opportunities to talk about, interpret, and role-play moral dilemmas and to expose them to people at a level of moral thinking slightly higher than the one they're presently at.

High School

THE HIGH SCHOOL EXPERIENCE

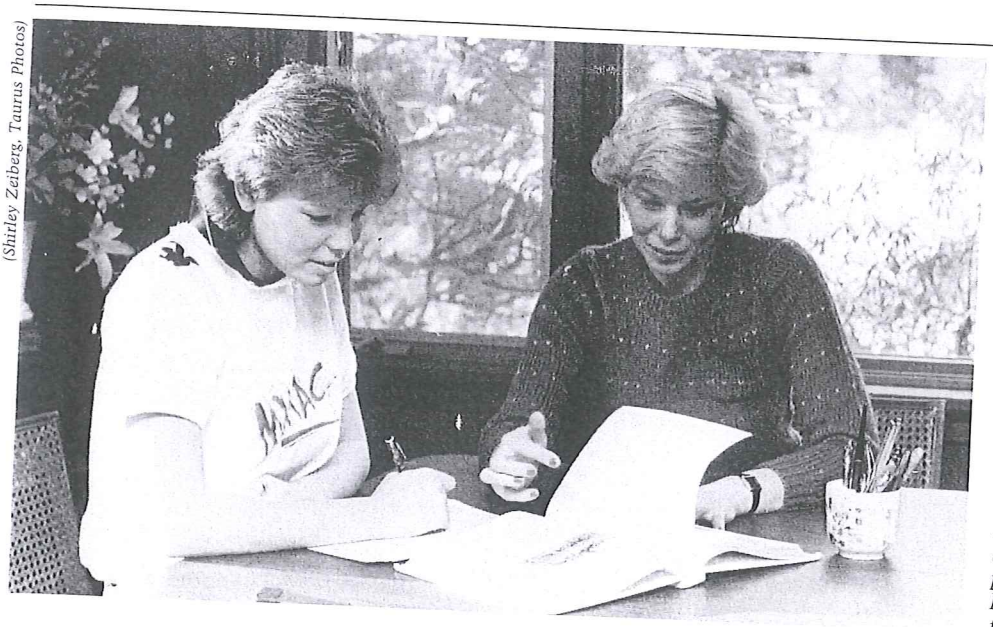
High school is the central organizing experience in most adolescents' intellectual lives. It offers basic day-to-day learning, a preview of career choices, and opportunities to participate in sports and get together with friends. It combines encounters with peers and encounters with a variety of adults.

The social, vocational, and athletic functions of high school are all important, but a primary focus of the 1980s appears to be on basic academic subjects. During the 1970s standardized test scores fell, most dramatically in vocabulary and reading. An average graduating senior in 1980 whose score put him or her in the 50th percentile in vocabulary and reading would have been in the 41st percentile in 1972. One important analysis of the reasons for this decline found that "the major factor . . . was a decreased academic emphasis on the educational process" (Rock, Ekstrom, Goertz, Hilton, & Pollack, 1985, p. vi).



(Michael Weisbrot/Stock, Boston)

For many Americans, graduation from high school marks the coming of adulthood.



(Shirley Zeiberg, Taurus Photos)

For high schools in the 1980s, the primary focus seems to be on basic academic subjects. Many parents are concerned about how they can help improve their children's grades.

In anticipation of these findings, voices calling for increased emphasis on basic academic subjects have grown louder and more insistent. There has been a renewed interest in learning foreign languages (Maeroff, 1984), but recent analysis indicates that American high school students still take insufficient courses in science and mathematics (National Center for Education Statistics, 1984).

Most Americans graduate from high school. Today, almost three-fourths of young Americans earn high school diplomas, compared with about one-third in the 1930s and just over one-half in the 1950s. Since 1972 about 3 million students a year have graduated from high schools around the country. Almost half of them have gone on to college or will do so, and about half of these have earned or will earn bachelor's degrees (National Center for Education Statistics, 1982, 1984a).

DROPPING OUT OF SCHOOL

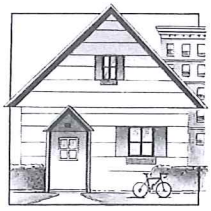
Students who decide to leave school before receiving a diploma make a crucial decision that reduces the number of opportunities that their futures will hold. Dropping out of high school does not guarantee poverty, but dropouts do have to scramble harder to start their careers. Many employers require a high school diploma, and many jobs require the skills that come from a solid education. It is important to encourage those who think about dropping out to stay in school.

Who Drops Out?

The typical high school dropout is an eleventh-grade minority-group boy from a low-income family who lives in a big city in the west or south, who's doing

A CHILD'S WORLD . . .

THE EVERYDAY WORLD



Can parents help children improve their grades? The students with the best grades in high school tend to be the ones whose parents are most involved with their children's lives. This conclusion is based on a survey of over 30,000 high school sophomores in more than 1000 schools.

The table below lists the survey items and the percentages of students that each item describes. A clear trend appears in every line of the table: the higher the grade, the more likely the parents are to be involved. The father's importance is especially noteworthy. Mothers appear to monitor their children's schoolwork closely, but fathers are more variable. The less involved a father is, the poorer his children fare.

This survey does not prove a cause-and-effect relationship. It could be that doing well in school makes children more interesting to their parents, making the parents more helpful to these children. A relationship in the other direction, however, is more likely: parents stimulate their children by showing concern for how they do in school.

The table shows more than that commonsense conclusion, however, for a parent might monitor homework and grades, but still not take the child seriously outside the school setting. This survey shows that the most helpful parents are those who talk to their children, know what they are doing, and are available to them. They take their children seriously in and out of school, and the children respond to this attention and concern.

	SELF-REPORTED GRADES			
SURVEY ITEM	MOSTLY A's	MOSTLY B's	MOSTLY C's	MOSTLY D's
Mother keeps close track of how well child does in school.	92%	89%	84%	80%
Father keeps close track of how well child does in school.	85%	79%	69%	64%
Parents almost always know child's whereabouts.	88%	81%	72%	61%
Child talks with mother or father almost every day.	75%	67%	59%	45%
Child lives in household with both parents.	80%	71%	64%	60%

Source: National Center for Education Statistics, 1985.

poorly in school, and who is in a nonacademic (vocational, technical, or general) program. More than half a million students (about 14 percent) who were sophomores in 1980 left high school before graduation—almost one-half in the eleventh grade, almost one-third in the senior year, and about one-fourth in the tenth grade. Boys are slightly more likely to drop out (14.7 percent, compared with 12.6 percent of girls). Asian-American students have only a 3.1 percent dropout rate, and the percentages for other ethnic groups are as follows: whites, 12.2 percent; blacks, 17 percent; Hispanics, 18 percent; and Native Americans, 29.2 percent (National Center for Education Statistics, 1984).

Most dropouts are of at least normal intelligence, and some have above-average IQs (Cervantes, 1965; Combs & Cooley, 1968).

Why Do They Drop Out?

The reasons dropouts give for their decision are not surprising, although they don't tell the whole story. When asked 2 years later why they had dropped out, one group of males pointed to poor grades (36 percent), not having liked school (25 percent), having been expelled or suspended (13 percent), or having had to support the family. Girls attributed dropping out to marriage or plans to marry (31 percent), feeling that "school isn't for me" (31 percent), poor grades (30 percent), pregnancy (23 percent), and a job (11 percent) (National Center for Education Statistics, 1983).*

It's hard to pin down the precise reasons for dropping out. While more than half of the girls said that they left because of pregnancy or marriage, it's possible that they chose these options because they weren't doing well or weren't interested in school. And if those reasons were true, why were they? The boys' explanations tell us just as little about their underlying reasons. Other researchers have attributed dropping out to such factors as a lack of motivation and self-esteem, minimal parental encouragement of education, teachers' low expectations of students, and disciplinary problems at home and at school (Rule, 1981).

What Happens to Dropouts?

Dropouts have trouble getting jobs. In 1982, 27 percent of male high school dropouts and 31 percent of female high school dropouts were looking for work; 32 percent of the young women were not looking for work because they were full-time homemakers. Of those who were working, only about 14 percent of the young men and 3 percent of the young women had jobs that required real skills. Typical jobs held were waiting on tables, doing manual labor, doing factory work, working as a clerk in a store, baby-sitting, doing clerical work, and working on a farm. More than half the dropouts regretted leaving school very soon after they did so, and a small percentage took part in educational programs (National Center for Education Statistics, 1983).

HIGH SCHOOL AND WORK TRAINING

The poor employment record of high school dropouts raises the question whether potential dropouts might be helped by finding a job while they are still in school. A greater proportion of teenage students are working today than at any other time in the past 25 years—about one-half of all high school juniors and seniors and almost one-third of freshmen and sophomores (Cole, 1980). Some work because their families need the income, and others work because they want the independence that comes from earning their own money.

This trend fits in well with the traditional American belief in the moral benefits to be derived from working, but studies have found that teenagers who work are no more independent in making financial or other decisions

*The figures total more than 100 percent because the respondents could give more than one reason for dropping out of school.

affecting their lives than their classmates who don't hold jobs (Greenberger, Steinberg, Vaux, & McAuliffe, 1980). Most students who work part time do not learn the kinds of skills that will be useful later in life (Hamilton & Crouter, 1980), and those who work during high school are not likely to earn any more money afterward than they would have if they had not held jobs (L. D. Steinberg, 1982).

Moreover, work does seem to undermine performance in high school, especially for teenagers who put in more than about 15 or 20 hours of work per week. Their grades, their involvement in school, and their attendance decline. Thus, the experience gained by working is offset by the reduced school experience. Adults who want to help adolescents prepare themselves for future careers do so best by encouraging them to be more concerned with school than with work.

Developing a Career

When she was 6, Vicky told everyone that she was going to be an astronaut. Reminded of that ambition when she was 12, Vicky laughed. Math and science were not her best subjects. At 15 she did some volunteer work at a hospital and began thinking that perhaps she would become a psychiatrist. Now in her senior year at high school, Vicky is applying to colleges. She has decided against medical school, and instead she is writing to colleges with 5-year programs leading to a master's degree in social work.

Jason's ambitions are not so sharply focused. At 6, he wanted to be a baseball player. At 12, the idea of playing baseball still sounded good, but so did the thought of becoming a dancer. As the time to apply to a college draws closer, he has a wide range of attractive possibilities—baseball, choreography, law, geology, and anthropology all interest him to some extent. He hates the idea of closing the door on any of them.

STAGES IN VOCATIONAL PLANNING

Vicky's development follows three classic stages in career planning: the fantasy period, the tentative period, and the realistic period (Ginzberg et al., 1951). During the *fantasy* period of her elementary school years, Vicky's choices are active and exciting rather than realistic, and her decisions are emotional rather than practical. At about the time of puberty, the *tentative* period ushers in a somewhat more realistic effort on her part to match her interests with her abilities and values. By the end of high school, the *realistic* period lets her plan for the right education to meet her career requirements.

Jason, however, has not yet reached the realistic period, and he is not alone. In one study, more than 6000 high school seniors in Texas were asked to name their top three career choices, to indicate their feelings about vocational styles (working alone versus working with others; working inside versus working outdoors; working with people, things, or ideas; and doing work that involves traveling), and to report on their educational plans.

At a time in their lives when they had to make crucial choices about

education and work, these students had a very limited knowledge about occupations. Not surprisingly, they tended to know more about their first career choice and increasingly less about the next two. But even of those who felt that they had a good understanding of their first career choice, only about half planned to get the appropriate amount of education. Some seemed bent on schooling that would leave them overeducated for their chosen careers, and others were not planning on getting enough training. Furthermore, most of the students didn't seem to be making good matches between their career choices and their own interests (Grotevant & Durrett, 1980).

During the years 1972–1980 high school seniors made several changes in career goals. In 1972, 10.9 percent of students said that they wished to become teachers. In 1980, only 3.9 percent expressed such an ambition. The biggest move was toward business. The proportion of young people planning careers in business jumped from 13 percent in 1972 to 23.6 percent in 1980. In 1980, 50.7 percent of seniors hoped for a professional or technical career, but those positions constitute only 12.8 percent of the jobs in the labor force. So perhaps their ambitions and expectations were less realistic than they believed (Grotevant & Durrett, 1980).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Volunteer work is one way to get a preview of the rewards and frustrations of a career. Here, a teenage volunteer in a hospital feeds a child. If she finds the work rewarding, perhaps she will pursue a career as a nurse or a doctor.

INFLUENCES ON VOCATIONAL PLANNING

The adolescent's search for identity, discussed in detail in Chapter 16, is closely tied to his or her vocational ambitions. The question "Who shall I be?" is very close to "What shall I do?" The choice of a career is crucial: if we pick one that gives us a sense that we're doing something worth doing and one that we can do well, we feel good about ourselves. On the contrary, if we feel that it wouldn't matter to anyone whether we did our work or not or if we feel that we're not very good at it, the very core of our emotional well-being can be threatened.

How then, do young people make these choices? Many factors enter in, including socioeconomic circumstances, parents' ambitions for their children, parents' encouragement, education, individual ability and personality, sex, race, societal values, and the accident of particular life experiences. Let's take a look at some of these influences.

Socioeconomic Status

Most of us are greatly influenced in our ambitions by the kinds of homes we grow up in. Why is this so? There are many reasons. For one thing, most people are more comfortable in familiar situations. And most people are more familiar with people of a similar social class. Children who grow up in working-class neighborhoods are more likely to know adults who work as secretaries, plumbers, postal workers, and hairdressers than as doctors, lawyers, professors, and psychologists. They thus become familiar with both the jobholders and the jobs themselves, which then appear more attainable.

Young people's aspirations are limited for a number of reasons. They may not see the most prestigious professions as open to them, given their circumstances. If parents are unwilling or unable to help with money and encour-

agement, students may give up, not knowing where else to turn for the kind of support they need.

Furthermore, parents' ambitions are powerful influences in determining "appropriate" and "inappropriate" occupations. When young people choose work that deviates markedly from the kind their parents deem "suitable" for their social class, their parents often discourage them. It's rare these days for parents to discourage children from aspiring to more prestigious careers than the parents are familiar with; the most common reaction is dismay when children choose work that their parents consider "beneath" them. Conger and Peterson (1984) state:

> If the reader harbors any doubt that this is indeed the case, just observe the reactions of many otherwise tolerant and reasonably flexible upper- and upper-middle-class parents to the announcement by an adolescent daughter that she intends to raise vegetables and take in sewing on a communal farm, or by a son that he intends to live frugally by taking part-time laboring jobs or driving a cab in order to devote as much time as possible to painting or writing poetry. Parents may fear that such choices will lead to general social disapproval both of their child and of themselves. Furthermore, when the economic rewards of the occupation selected are meager, parents may fear that the child will not be able to live in the same kind of neighborhood as other members of his social class, or to afford the same social, recreational, and educational advantages. (p. 453)

Parents

If parents do not encourage children to pursue higher education and are not willing to help them through college, it is that much harder for the children. Some do work their way through school, take out loans, or win scholarships. But by and large, parents' encouragement and financial support influence aspiration as well as achievement. When parents are ambitious for their children and reward them for doing good schoolwork, the children aspire to occupations higher than those of their parents (G. D. Bell, 1963). Parents' encouragement is a better predictor of high ambition than social class.

When 2622 sixth-, eighth-, tenth-, and twelfth-grade black students and white students from all social strata were asked to tell their own expectations for their education and their fathers' and mothers' expectations for them, more than half the students agreed with the perceived goals of each parent. A greater level of agreement existed between student and mother than between student and father, possibly because of the greater amount of time that women have traditionally spent with their children (T. E. Smith, 1981).

What about the parents' own careers? How weighty is their influence? Considerably so, in many cases. A review of the literature on this relationship found that a man's occupation influences his son's career choices, but not his daughter's (Conger & Peterson, 1984). Werts (1966, 1968), for example, found that 43.6 percent of doctors' sons chose to enter medicine, that 27.7 percent of attorneys' sons opted for the law themselves, and that the sons of physical and social scientists were similarly influenced in their career choices. Newer research indicates that college-educated daughters of working mothers have higher career aspirations and achieve more in their careers than daughters of homemakers (L. Hoffman, 1979).

(AP/Wide World Photos)

The father and daughter shown here are exceptions to recent research which found that a man's occupation influences his son's career choices, but not his daughter's. Jane Fonda (as well as her brother, Peter) followed in the footsteps of her father, the actor Henry Fonda.

School

The particular school that students attend can affect their choice of occupation. The sons of manual workers have higher educational and career aspirations when they attend largely middle-class schools than when they go to school mostly with other children of working-class parents. Similarly, the sons of professionals have higher goals when they go to school with other upper- and middle-class young people than when they attend schools that have a high proportion of students from lower-class families (Boyle, 1966; A. B. Wilson, 1959). This effect is more pronounced in large, heterogeneous communities.

Personality

Huey Long, the controversial politician, was brash and egotistical all his life. He would go to almost any lengths to get attention, he manipulated people for his own ends, and he made up his own rules for behavior. Commented T. H. Williams (1969, p. 37), "These are qualities that make an ordinary person the opposite of endearing—but in a politician they are called genius."

The typical successful politician has a very different personality from that of the typical successful nuclear physicist. A restless, energetic, outgoing person is more likely to succeed in politics, sales, or the military than in accounting or scientific research. A shy, thoughtful person would be happier as a librarian than as a trial lawyer.

Most jobs require certain personality traits as well as particular talents. People who know themselves well enough to pick work that suits them temperamentally are more likely to be successful. A study of 638 bright, college-

bound high school seniors found that they had formed definite ideas of personality types associated with various occupations and that they saw their own personalities in terms of vocational stereotypes (Holland, 1963a, 1963b). These students saw engineers as practical and interested in accomplishing things; physicists as dedicated and intellectual; teachers as patient and helpful; accountants as precise but dull; artists as creative and temperamental; and business executives as smart, busy, and ambitious (Holland, 1963a). Girls who expressed interest in scientific vocations saw themselves as analytical, curious, precise, and thorough; girls who were interested in social work thought of themselves as easygoing, accepting of others, friendly, and understanding. Boys who looked ahead to business careers considered themselves aggressive, dominant, and energetic, and *not* artistic, idealistic, quiet, or scientific, while boys with artistic leanings saw themselves as dreamy, idealistic, impractical, and sensitive (Holland, 1963b).

People also tend to enter occupations in which the job duties match what they are good at. Boys who expressed interest in skilled trades said that they most enjoyed working with their hands, tools, equipment, or apparatus; girls who were attracted to jobs in accounting said that they were most competent in solving numerical problems (Holland, 1963b).

People also go into particular careers to fill basic personality needs. A woman may become a psychiatrist to clear up questions about herself, or a man may become a business executive because he wants to wield power. High school seniors who were asked to rate jobs according to the personality needs they fulfill showed that they viewed different jobs and jobholders differently. They considered scientists and engineers to be motivated by needs for achievement, but not by needs for affection. Physicians and nurses emerged as being much warmer, with needs for close human relationships (Dipboye & Anderson, 1961). Thus the choice of a vocation involves many factors other than a person's intellectual capabilities and interests. That all-important intangible known as *personality* plays a large part.

A major issue in adolescence is the continuing effort to define the self, to mold an identity, and to emerge as a person one recognizes and admires. We'll discuss this effort in more detail in Chapter 16.

Summary

KEY CONCEPTS

- Piaget's ultimate stage is that of formal operations, in which people can think abstractly and scientifically. Adolescents can attain this stage, but not all do.
- Kohlberg's highest stages of moral development depend on abstract thinking and acceptance of moral relativism.
- The development of career plans typically proceeds through three stages: the fantasy period, the tentative period, and the realistic period.

KEY FINDINGS

- About two-thirds of Americans attain the stage of formal operations.
- Adolescents' ideas are often egocentric, not in the childish sense, but as manifested by finding fault with authority figures, argumentativeness, self-consciousness, self-centeredness, indecisiveness, and apparent hypocrisy.
- Most adolescents are in Kohlberg's conventional stages (3 and 4) of moral development.
- Almost three-fourths of young Americans earn high school diplomas.
- Many high school dropouts have normal intelligence or better.
- High school students with part-time jobs do not fare better in later life, and those who work long hours (15 or more per week) see their schoolwork suffer.
- Many high school seniors do not have realistic career plans.

KEY APPLICATIONS

- Career counseling should consider the student's socioeconomic status (will the student or the student's family see a particular career as "beneath" the student?), family (how much help and encouragement will the family provide?), and personality (does the student have the temperament that goes best with the chosen career?).

Suggested Readings

Elkind, D. (1984). *All grown up and no place to go*. Reading, MA: Addison-Wesley. A thought-provoking book about the difficulties involved in being a teenager and raising teenagers today. Elkind argues that today's teens are unprepared to face adult challenges at an early age, resulting in many problem behaviors. The chapter relating thinking abilities at the formal-operations stage to behaviors such as self-centeredness, self-consciousness, and argumentativeness is outstanding.

Inhelder, B., & Piaget, J. (1958). *The growth of logical thinking from childhood to adolescence*. Boston: Little, Brown. A classic account of Piaget's research, written with his long-time collaborator Barbel Inhelder. This book traces cognitive development through its four stages.