10

Setting Goals and Making Plans: How Children and Adolescents Frame Their Decisions

Kathleen M. Galotti
Carleton College

Research on the development of decision-making skills and attitudes rests on the premise that good decisions are those that furthers one's own goals (Bandura, 1989, 2001; Byrnes, 1998; Byrnes, Miller, & Reynolds, 1999; Galotti, 2002; von Winterfeldt & Edwards, 1986; Zimmerman, 2001). Yet, quite little is known about how goal setting actually develops. Much of the existing literature on goal setting and planning (e.g., Ellis & Siegler, 1997; Friedman & Scholnick, 1997; Gauvain & Rogoff, 1989; Hudson, Shapiro, & Sosa, 1996; Kahle & Kelley, 1994) presents children with tasks in which goals are given, or constrained to a particular domain, such as doing homework. In contrast, little is known about the types of goals elementary and secondary aged students set for themselves, or about their approaches to, and successes at, planning to meet their goals. In this chapter, I describe two investigations that address some of these questions.

THE SIGNIFICANCE OF GOAL SETTING

The processes by which people formulate and attempt to attain goals has received much attention in the psychological literature. Miller, Galanter, and Pribram (1960) created the widely regarded seminal work on goal-directed behavior, but the centrality of goals to other psychological constructs goes back much further. William James (1890/1983) argued that "the pursuance of future ends and the choice of means for their attainment are thus the mark and criterion of the presence of mentality" (p. 21), thus thrusting the

topic center stage in psychology, the science of mind. Pinker (1997) argued that the presence of goals defines a person's (or animal's, or extraterrestrial's) intelligence, arguing that "Intelligence . . . is the ability to attain goals in the face of obstacles by means of decisions based on rational . . . rules" (p. 62). Bandura (2001) noted that "Forethoughtful, generative, and reflective capabilities are, therefore, vital for survival and human progress" (p. 3).

Kruglanski (1996) saw goals as energizers of behavior, entities that "lend meaning and direction to our existence" (p. 599). Little (1998) agreed that well-being and personal meaning come from both the setting and the accomplishment of personal goals, or, as he calls them, "personal projects." He argues that personal projects "provide a sense of structure to human lives, a source of continuing personal identity, and a point of active interchange between people and their surrounding contexts" (p. 194).

These quotations speak to the fact that many psychologists with different specialties have seen goal setting as playing an essential role in human experience. Goals are seen as a motivator of behavior, and as the source of life's meaning. However, it is my purpose here to examine specifically the role that goals play in directing and constraining decision making.

GOAL SETTING AND DECISION MAKING

Decision-making researchers often concern themselves with issues of rationality—that is, in trying to create ways of assessing the overall goodness of a decision. For example: Have I made a good decision in my choice of a career? In my decision to work for this specific employer? To build a house? To have children?

In assessing the goodness or rationality of a decision, we cannot use the outcome of the decision as the yardstick. Too often, outcomes are influenced by bad luck, unforeseen and unforeseeable factors, and/or uncontrollable elements. I could have chosen to work for Company A as opposed to Companies B or C. My decision could be based on my interactions with prospective supervisors at each company—I "clicked" best with the one at Company A, and wanted to work for her. However, just after I accepted Company A's offer and turned down the other two, the supervisor at Company A calls to tell me that she has just quit, and will now be working at Company C (which has already filled the position I turned down). Does this make my initial decision wrong? No. To the contrary, it may well have been the best decision I could have made, given the information I had at the time.

Moreover, the choice that is best for me might not be best for someone else. My career choice might be great for me, but bad for you—due to differences in our temperaments, our work styles, our values for job-related or family-related issues. Faced with the same options of working for Companies A, B, or C, you might rationally choose Company B because you value more

highly certain aspects or features of that company than I do. In other words, for many real-life decisions, the outcomes cannot be objectively ranked on an overall scale of goodness that will hold true for every decision maker. Any set of choices must somehow be considered relative to something about the individual decision maker. That elusive "something" is likely to be a person's overall goals.

For example, imagine I make a career decision to be a lifeguard. If my only goals are to be near the seashore and get a tan while collecting a paycheck, then this decision might be the perfect, most rational choice for me to select. If, instead, my goals include using state-of-the-art technology on a daily basis, experiencing a great deal of intellectual challenge, attaining a high level of societal prestige, and having ability to move up the corporate ladder, then lifeguarding is not really good choice for me. And if I hate sand or getting any part of my clothing or skin wet, then lifeguarding is definitely a wrong and irrational decision. The point is that the overall goodness of a decision can only be evaluated with respect to a person's goals.

A recent and influential descriptive theory of people's real-life decision making, *Image Theory*, locates a person's goals at the heart of the decision making process. Image Theory posits that most of the work of decision making is done during a phase known as the "prechoice screening of options" (Beach, 1993, 1998), during which decision makers typically winnow down the number of options under active consideration to a small number, sometimes one or two. They do this by asking themselves whether a new goal, plan, or alternative is compatible with three images, roughly described as mental representations of three constellations. These are (a) the value image (containing the decision maker's values, morals, principles); (b) the trajectory image (containing the decision maker's goals and aspirations for the future); and (c) the strategic image (the ways in which the decision maker plans to attain her or his goals). Options judged incompatible with one or more of these three images are screened out and given no further consideration.

In summary, a person's goals have several important functions in the process of making decisions. First, the goals can be used to establish the overall rationality or worth of each option. Second, they can be used to screen out unacceptable options from further consideration, thus helping a decision maker focus his or her energies on viable options. Goals can also direct the decision maker as to what information she should gather, what the possible options are, and what plans need to be made to achieve them.

THE NATURE AND STRUCTURE OF GOALS

Goals have been defined as internal representations of desired states (Austin & Vancouver, 1996). Goals can be thought of as ideal outcomes that people would like to achieve in some realm of their life. When a discrepancy exists

between a goal and the current state, people are often motivated to take actions to reduce that discrepancy (Carroll, Durkin, Hattie, & Houghton, 1997). So, for example, my goal is to finish this chapter within the next week—but at the moment I have much left to do. That gap in where I am versus where I want to be is an influential motivator in how I choose to spend my time this week.

Goals do not need to be conscious or explicit. In fact, some have argued that physiological mechanisms of homeostasis, such as regulation of internal body temperature, function as goals that are nonconscious. The more commonly thought of case, of course, involves goals that we have set intentionally. A student sets a goal, for example, of achieving an overall B grade point average. That student gets a C on a midterm in one course. This feedback, in light of her goal, might cause her to redouble her efforts in the course, or to change courses, or to do things to improve her grades still more in other courses. The student's goals in this instance define for her an acceptable level of academic performance, and inspire her to achieve in this realm (Carroll et al., 1997).

Obviously, goals differ in content—what they are about. One taxonomy of goals comes from Wadsworth and Ford (1983), who divided personal goals into six different content areas, including work/school, family life, social life, leisure, personal growth and maintenance, and material/environmental. Of course, other taxonomies are possible, and to give just one other example, Williams and Long's (1991) taxonomy includes the following categories: academic achievement, personal health, friendships, job success, intimate relationships, and personal. Other researchers categorize goals according to the functions they are intended to fulfill (Strough, Berg, & Sansone, 1996), for example, goals that help establish independence, goals that promote a sense of being superior to others, goals that promote attachment to others.

Some psychologists distinguish between *learning* or *mastery* goals, intended to help the individual gain a new skill or develop knowledge, and *performance* goals, intended to allow the individual to demonstrate her or his proficiency or talent, to receive praise, and/or to please others (Dweck, 1999; Elliott & Dweck, 1988; Meece, Blumenfeld, & Hoyle, 1988; Pintrich, 2000; see Covington, 2000, for a review of the achievement goal theory literature).

Goals differ in a number of other dimensions. One such dimension is complexity—the degree to which goals are simple (e.g., sweep the floor) or involve lots of parts and subgoals (e.g., write a textbook). Another is difficulty—the chances of actually succeeding in fully meeting the goal. A third dimension is the level of specificity of the goal—the degree to which it is clear when the goal has been accomplished. It is much clearer to know, for example, whether one has or has not attended a meeting than it is to know whether one has developed the strongest proposal possible. Much evidence in the industrial/organizational literature suggests that people who set more

difficult and more specific goals perform better and achieve more than do people who do not set any goals or people who set very general ("I'll just try to do my best") goals (Locke & Latham, 1990). Goals also differ in how much control an individual has over them (e.g., sweeping the floor vs. winning an election; Skinner, 1996), and in how realistic they are.

The time frame of each goal also varies. Some goals span a lifetime, whereas others span only a day or even an hour.

To summarize, then, goals have been described as differing in the following dimensions: explicitness, content, general function, complexity, difficulty, specificity, controllability, realism, and time frame. It will be important to assess which aspects differ developmentally. We return to this question after a general review of background on developmental achievements relevant to goal setting.

DEVELOPMENTAL DIFFERENCES IN GOAL SETTING AND PLANNING

Many of the studies described in the goal-setting literature focused on goals that were given to research participants, or else on goals specific to particular tasks that research participants were asked to perform (e.g., Earley, 1985, Locke, 1982). Moreover, most of the studies reviewed involved adult (mainly undergraduate) research participants. In contrast, the objective of the research described here was to examine also the goals that children and adolescents set for themselves in their everyday lives. I turn here to a brief review of what is known about goal setting and planning in children and adolescents.

That even young children set goals for themselves is demonstrated in a study by Lysyuk (1998), who observed 166 children ages 2 to 4 as they played with various objects: clay, paper and colored pencils, blocks, and dolls. Children's spontaneous comments about what they were going to do were recorded, and categorized as to whether or not they indicated a specific intention to use the materials in a particular way (e.g., a goal). It was found that by age 3, most (87.4%) of the children announced at least one goal, and/or at least one evaluation of an activity as productive.

Children as well as adults hold different types of goals. Dweck and her colleagues (Dweck & Leggett, 1988; Elliott & Dweck, 1988) demonstrated the existence of stable individual differences among fourth- and fifth-grade children. These children could be reliably classified as holding or choosing either performance or learning goals. Children with learning goals were more willing to risk error and to persist longer in the face of failed attempts than children with performance goals. The source of individual differences in the type of goals a child (or adult) holds in a given domain is yet to be fully iden-

tified. However, a child's self-efficacy and his or her own sense of how mastery of a certain skill or domain is attained have been predicted to change with development, which in turn affects the approach to goal setting, although as yet in ways undocumented by research (Dweck & Leggett, 1988; Eccles, Wigfield, & Schiefele, 1998). Schunk (2001) reviewed work suggesting that self-set goals are particularly important in the development of a sense of self-efficacy.

Children's view of themselves as agents also undergoes a great deal of development during childhood and adolescence (Harter, 1998). For example, while young (preschool) children tend to be unrealistically positive about their abilities to succeed on very difficult tasks, school-agers become increasingly oriented toward information about their performance relative to their peers (Ruble & Frey, 1991). In turn, this depresses their predictions about their future performance, meaning that self-judgments become more negative, albeit more realistic.

School-aged children also become more able and likely to recognize that others (parents, teachers, peers) are evaluating them, and come to internalize at least some of the expectations of others in their own evaluations. Children's behavior becomes more self-regulated as the standards and rules of important others are internalized (Harter, 1998). As these changes occur, they may well affect goal setting. Older children might be more realistic in their goal setting, more able to assess how controllable a goal is, and more able to think about themselves and their activities in a broader number of realms.

Planning abilities also develop over childhood and early adolescence. Children have been shown to become more effective planners, that is, better able to generate ideas, sequence activities, prioritize, and use a bigger and more varied repertoire of existing plans (Baker-Sennett, Matusov, & Rogoff, 1993; Gardner & Rogoff, 1990; Gauvain & Rogoff, 1989). Predictably, children are better planners when they are in more familiar contexts where they have greater knowledge of events (Hudson, Sosa, & Shapiro, 1997). Berg, Strough, Calderone, Meegan, and Sansone (1997) showed that preadolescents were less likely than older groups (college students, middle-aged adults, and older adults) to anticipate problems in their real-life activities. As planning and goal setting seem closely intertwined, one might expect concomitant changes in the way children and adolescents set goals as their planning skills unfold.

Further cognitive and affective developments during adolescence are likely to affect goal setting and planning once more. Adolescents are a particularly important population to study with respect to the activity of setting goals. Adolescence is a developmental period defined by rapid changes in the physical, cognitive, emotional, and social realms. As adolescents leave middle childhood behind, they confront a wide variety of new tasks and chal-

lenges and are granted more autonomy with which to face them. As described by Havighurst (1972), Erikson (1968), and Marcia (1966), a major developmental task for adolescents is to establish their identity: a unified vision of their values, aspirations, goals, and roles, both current and future. Nurmi (1991; see also Nurmi, Poole, & Kalakoski, 1994) demonstrated that adolescents do in fact think a great deal about their own futures, especially their own occupation and education and future family.

It seems reasonable to believe that the cognitive changes occurring in adolescence affect and add new dimensions to the task of goal setting. Adolescents are described by Piagetian and neo-Piagetian theorists alike as being able to think hypothetically, to see reality as only one possibility (Keating, 1980, 1990; Moshman, 1999). Adolescents are argued to gain more conscious control over the inferences they make and the ways in which they coordinate hypothetical possibilities and their implications. They are also thought to be more adept at reasoning from principles, as opposed to concrete rules, than are younger children. Thus, the picture that emerges is that of adolescents developing flexibility and power in their thinking and imagination. This development allows them greater control and direction, which in turn enables more systematic generation of possibilities along with the capacity to think ahead, to plan and anticipate consequences (Keating, 1980).

Strough et al. (1996) asked older elementary students, college students, middle-aged (age 40 to age 59) adults, and older adults (60+ years old) to describe a recent problem (hassle, conflict, challenge) they had experienced within the past year, then to state their goal in dealing with the problem. Responses to this question were categorized according to a taxonomy they developed. Results showed that interpersonal elements were most salient to middle-aged adults and least salient to the preadolescents, who in turn were more focused on task improvement and school-related goals. The authors attributed the age differences in goal types to the fact that individuals at different ages were experiencing different age-related life tasks (e.g., finishing school vs. managing a career).

Klaczynski, Laipple, and Jurden (1992) conducted a study in which high-school students (either those college-bound or those in a vocational-training track) were surveyed about their developmental goals, their interpretation of practical problems, and their plan for addressing those problems. The listed goals were classified into three categories: (a) adult anticipation (e.g., getting married, having children, finding an apartment); (b) career anticipation (e.g., be successful, get straight As, find a good job); and (c) social (e.g., party, go to a dance, hang out). Goals were scored for how far in the future the adolescent projected accomplishing them.

There were effects found for both developmental level and track. High-school sophomores, for example, listed a significantly higher percentage of career anticipation goals than did high-school seniors. Vocational-training

students listed a greater frequency of adult anticipation goals than did college-bound students. Vocational sophomores, in particular, were more likely to list goals that were projected less into the future than were all other students. These results replicated previous ones that also reported that college-preparatory students focus more on career preparation, whereas vocational students emphasize adult preparation (Klaczynski & Reese, 1991).

Studies by Verstraeten (1980) and Klineberg (1967) suggested that children and adolescents have different views of the future. Younger children have been described as seeing the future as "a refuge for unrealistic fantasies" (Verstraeten, 1980, p. 179), so that the goals they list are not as likely to be meant to influence behavior. A child who states "I want to be an astronaut," on this account, does not use that goal to guide current behavior, but instead states a dream that he may or may not really intend to accomplish. In contrast, adolescents are thought to realistically project their futures further out in time and with more realism.

Nuttin (1985) used the term *time perspective* to be composed of a dimension in which a person locates objects—either memories (located in the past) or goals (located in the future). Presumably, older adolescents will have a more elaborated future time perspective, one that stretches further out in time (as adolescents become better able to use their cognitive skills to mentally model their future lives).

STUDY 1: DEVELOPMENTAL DIFFERENCES IN SELF-SET GOALS

Most of the studies already described have focused on a specific age group, for example, preschoolers or adolescents. Thus, psychologists do not have a broad picture of how goal setting develops. The first goal of this research was to present descriptions of how children and adolescents from a broad age range describe and set personal goals.

The studies just reviewed allowed various predictions to be made. Specifically, these were:

1. *Older adolescents will have more goals than do younger children.* Presumably, the cognitive and psychosocial changes occurring in adolescence, combined with a stronger future orientation, would enable an older adolescent to think about goals more carefully and to be more aware of different realms of life (e.g., school, work, friends, family). This in turn should lead to a more nuanced and more numerous set of goals.

2. *Older adolescents will have different kinds of goals than do younger children.* The work of Klaczynski and colleagues as well as Strough et al. suggests the existence of age-related changes in goals set.

3. *Older adolescents will have goals that span a longer time frame in comparison with the goals of younger children.* A stronger future orientation and ability to think hypothetically ought to allow adolescents to "project" themselves into the future more comfortably and thus, to generate goals with longer time horizons.

4. *Older adolescents will have goals of greater complexity, controllability, and realism in comparison with the goals of younger children.* Both due to cognitive changes (e.g., the ability to reason systematically and to consider more options) and psychosocial changes (a more realistic sense of self-appraisal), the nature of personal goals set ought to differ.

The first study was therefore a descriptive study of the nature of goals that children and adolescents set for themselves. A prior question was whether children and adolescents see the general nature of goals in similar or different ways. So, we began by first asking our respondents to describe their understanding of what a goal is. They were then invited to describe their own goals. At first, they were asked to describe their goals over different time frames (yesterday, tomorrow, next week, next month, next year, lifetime) in an effort to minimally direct or interfere with the kinds of goals they would list. For ease of reference, I refer to these goals hereafter as *time-cued goals*. After generating this list of goals, participants were then asked to consider a number of categories of goals (school or camp; friends; family; hobbies, activities, or sports; jobs or chores; and personal goals) and asked if there were any other goals in these categories they had forgotten to mention. Again for ease of reference, I call this list of goals the *category-cued goals*.

Finally, students were asked to describe the plans they had for achieving each of the goals they had listed (both time-cued and category-cued). Interviewers made reference to a written list of goals they kept during the interview to conduct this latter part of the interview.

We interviewed children in Grades 1, 3, and 5—a broad sampling of elementary school-ages, as well as early adolescents (8th graders), and middle to late adolescents (12th graders). In total, 110 children were interviewed, with the number of each age group and gender shown in Table 10.1. Although specific ages were not recorded, the typical age for the grades is 7, 9, 11, 14, and 18 in the summer after 1st, 3rd, 5th, 8th, and 12th grades, respectively.

Participants were recruited over the summer months from local day-care programs, signs at local stores, recreation centers, and libraries, and through word of mouth. Students received gift certificates to the local Dairy Queen or bagel store as remuneration for their time. It may be worth noting that for the large majority of participants recruited, they "graduate" from elementary, middle, and high school at the conclusion of Grades 5, 8, and 12, respectively.

Interviews were recorded on microcassette recorders that were visible to the child. In addition, interviewers kept handwritten track of the goals each

TABLE 10.1
Number of Participants by Grade and Gender

Grade	*Girls*	*Boys*	*Total Number of Participants*
1st	15	10	25
3rd	8	15	23
5th	12	10	22
8th	11	10	21
12th	10	9	19
TOTAL	56	54	110

child listed on a sheet listing the time horizons of spontaneous goals and the categories of cued goals.

To help organize the results we found, I structure the discussion around the four hypotheses just listed.

Hypothesis 1: Older Adolescents Will Have More Goals Than Do Younger Children

The data showed clear support for this prediction. Older children and adolescents listed more goals than did younger children, as shown in Fig. 10.1. The total number of time-cued and category-cued goals listed was analyzed using a 2 (gender) × 5 (grade) × 2 (type of cue) mixed ANOVA, with repeated measures on the last factor. This analysis revealed a main effect of grade, $F(4, 100) = 19.15$, $p < .001$, $MSE = .23.61$, and a main effect for type of cue, $F(1, 100) = 84.52$, $p < .001$, $MSE = 6.80$. There were also two 2-way interactions: one between gender and type of cue, $F(1, 100) = 10.97$, $p < .001$, $MSE = 6.80$, and one between grade and type of cue, $F(4, 100) = 13.88$, $p < .001$, $MSE = 6.80$.

Post-hoc Tukey tests ($p < .01$) showed that the means for males and females differed on the number of time-cued goals listed (7.57 vs. 10.05 for males and females), but not for the category-cued goals (5.67 vs. 5.75 for males and females). The means for the grade by type of cue interaction are presented in Fig. 10.1. Post-hoc Tukey tests ($p < .01$) showed that for time-cued goals, the means for 1st and 3rd graders differed significantly from the means for 5th and 8th graders, which were in turn significantly lower than that of the 12th graders. For category-cued goals, the means for 1st, 3rd, and 8th graders differed significantly from that of 12th graders.

Notice in Fig. 10.1 that the most striking age differences in number of goals listed occurs for the time-cued goals. Recall that these were the goals first asked about, and for which the cues were less structured. Although the number of category-cued goals also rose with age, the differences were less pronounced and less linear. Presumably, cuing by category types provided al-

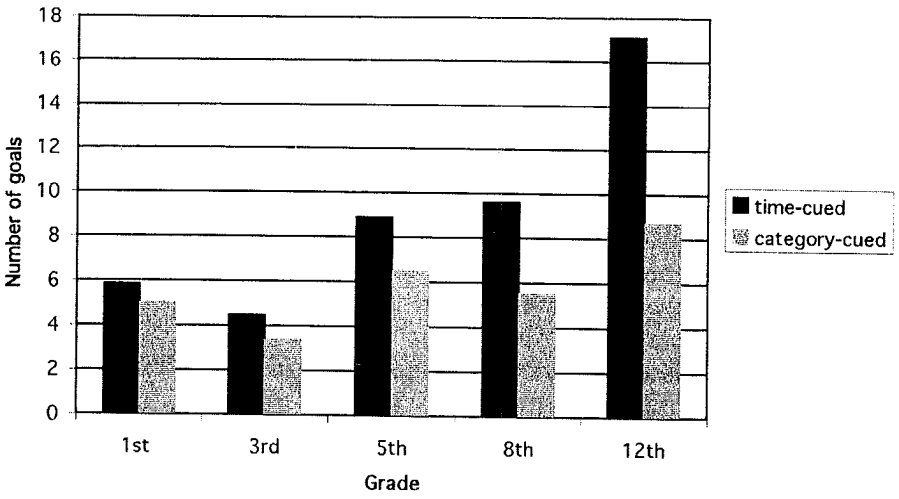

FIG. 10.1. Number of goals by cue and grade.

most the same degree of assistance to participants of all ages. Also, the category-cued goals were always generated in addition to the ones previously listed in response to time cues. These may therefore be of lesser importance to the participants.

Another explanation for the age differences may stem from age-related differences in understanding what a goal is. Recall that all participants were first asked to describe what a goal is. We coded these using the themes shown in Table 10.2, which also presents the overall interrater reliabilities

TABLE 10.2
Themes in Goal Definitions

Theme and Brief Definition	*Interrater Reliability*[a]
Achievement, accomplishment	.97
Desire, wish (something you want to do)	.85
Plan (activity or event that one plans for, budgets time or allocates resources to)	.86
Effort/Striving: (something one tries hard to do, devotes effort to)	.84
Promise/commitment/expectation of self	.63
Future (activity for the future, for one's lifetime)	.89
Time Frame (activity with a set or defined time frame)	.85
Challenge/standard/objective	.54
Improvement (something one wants to get better at)	.93
Important (something with significance to self or others)	.88
Specific example (student offers a specific "e.g.")	.92
Don't know/no definition	.95

Note. [a]Reliabilities were computed over three independent raters using coefficient alpha.

for each theme. A definition could incorporate any number (0, 1, 2, . . . or all) of themes.

I looked first to see whether older children incorporated more themes into their definitions. Total number of themes used was subjected to a 5 (grade) × 2 (gender) ANOVA. This yielded a main effect for grade, $F(4, 101) = 2.87$, $p < .001$, $MSE = .58$. Mean number of themes were 1.20 for 1st graders, 1.65 for 3rd graders, 1.77 for 5th graders, 2.29 for 8th graders, and 2.74 for 12th graders. Post-hoc Tukey tests showed that the mean for 12th graders differed from the means for 1st, 3rd, and 5th graders, as did the mean for 8th graders from the mean for 1st graders ($p < .01$). No other means differed. No gender differences were found.

I also looked to see whether the *content* of children's definitions of what a goal is changed with age, by subjecting the usage of each theme (1 = *used*, 0 = *not used*) to a 2 (gender) × 5 (grade) × 12 (theme usage) mixed ANOVA, with repeated measures on the last factor. This analysis revealed a main effect for grade, $F(4, 100) = 12.87$, $p < .001$, $MSE = .05$; a main effect for theme usage, $F(11, 1100) = 9.86$, $p < .001$, $MSE = .12$; and an interaction between these two factors, $F(44, 1100) = 3.27$, $p < .001$, $MSE = .12$. No other main effects or interactions were statistically significant.

Post-hoc Tukey tests indicated that there were significant grade differences only for Theme A (Achievement, accomplishment), with the mean usage for 8th and 12th graders significantly higher than that for 1st graders ($p < .01$). Although not reaching statistical significance, it is worth noting that the response *don't know* in response to the invitation to offer a definition of what a goal is was 36% for 1st graders, 17% for 3rd graders, but 0% for 5th, 8th, and 12th graders. Moreover, several more could only provide a specific example (e.g., "a goal thing . . . like in golfing when you hit it into a goal," as one 1st-grade girl explained it). Other (statistically nonsignificant) trends showed that older children and adolescents were more likely to see goals as involving the future, as expressing a desire or wish, and as involving a challenge or standard.

Thus, there is at least some evidence for an significant developmental pattern of understanding what the abstract notion of a goal is, which may in turn account, at least in part, for the fact that younger children articulate fewer personal goals than do older children and adolescents.

Hypothesis 2: Older Adolescents Will Have Different Kinds of Goals Than Do Younger Children

To examine the mix of the types of goals listed spontaneously, I examined the percentage of time-cued goals listed that fell into various categories. Recall that the time-cued goals were categorized into the following: school/

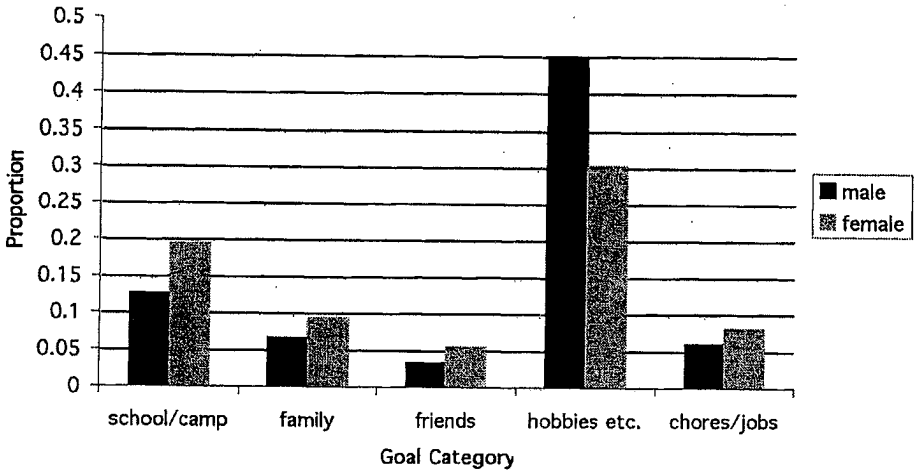

FIG. 10.2.

camp; friends; family; hobbies, activities, sports; job/chores; personal. The dependent measure for the first analysis was the percentage of time-cued goals in each of these categories. A 2 (gender) × 5 (grade) × 5 (category)[1] mixed ANOVA, with repeated measures on the last factor was run on this dependent measure. It revealed a main effect for grade, $F(4, 98) = 3.15$, $p < .05$, $MSE = .01$, although post-hoc Tukey tests did not reveal any pair of means as being significantly different. There was also a main effect of category, $F(4, 392) = 52.35$, $p < .001$, $MSE = .03$, as well as two significant interactions between category and gender, $F(4, 392) = 5.21$, $p < .001$, $MSE = .03$, and category and grade, $F(4, 392) = 4.69$, $p < .001$, $MSE = .03$. Figures 10.2 and 10.3 present the means for these two interactions.

Post-hoc Tukey tests ($p < .01$) revealed a significant gender difference for the category *hobbies, sports, activities* only (see Fig. 10.2). Boys listed more goals in the *hobbies/sports/activities* category than did girls, who instead listed proportionately more *school/camp*, *family*, *friends*, and *chores/jobs* goals. It is worth noting that the *hobbies, and so on* category perhaps allows goal setters the most autonomy and independence in the goals. This may in turn reflect a gender difference in autonomy or sense of independence from others.

For the interaction between grade and category, post-hoc Tukey tests ($p < .01$) revealed a significant difference in proportion of use of the category *hobbies, sports, activities* among 1st and 3rd graders, on one hand, and 12th graders, on the other hand (see Fig. 10.3). That is, older adolescents were less

[1]Most goals (99.5%) were able to be coded into one of the six categories. Because the data were proportions, and thus summed to one for every respondent, I omitted the category *personal* from the ANOVA.

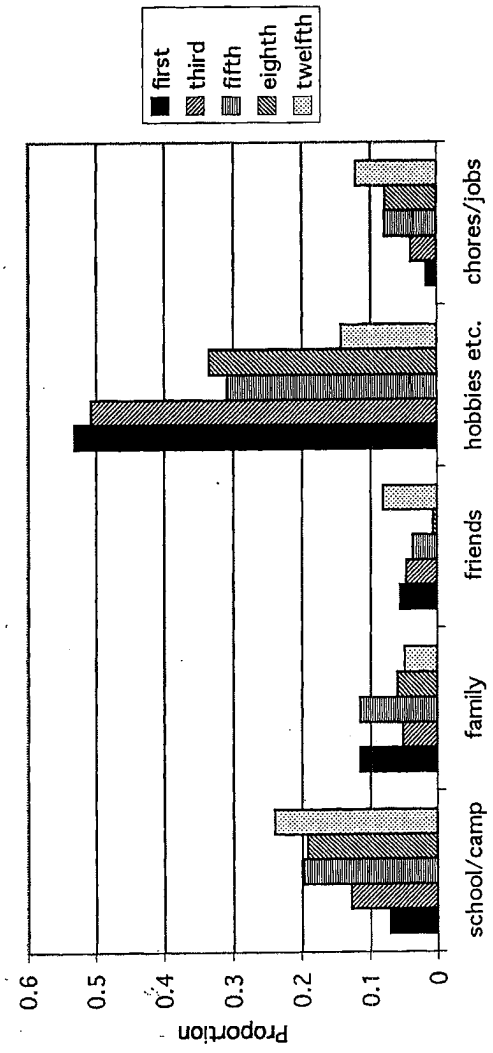
first
third
fifth
eighth
twelfth
Proportion
0.6
0.5
0.4
0.3
0.2
0.1
0
school/camp
family
friends
hobbies etc.
chores/jobs
Goal Category

FIG. 10.3.

likely than younger children to have as high a proportion of their goals in this category.

In these data, we again see that for at least three of the categories (*school/camp, hobbies, activities and sports, and chores/jobs*), some familiar age-related discontinuities. Once again, the 1st and 3rd graders' proportion of goals of these types are similar, as are the corresponding ones for 5th and 8th graders. Twelfth graders once again seem to be performing differently from all other participants.

Hypothesis 3: Older Adolescents Will Have Goals That Span a Longer Time Frame in Comparison With the Goals of Younger Children

I next looked at the category-cued goals. Recall that category-cued goals were categorized into the following time horizons: *next day*, *next week*, *next month*, *next year*, and *lifetime*. A 2 (gender) × 5 (grade) × 4 (time horizon)[2] mixed ANOVA, with repeated measures on the last factor, was run on the dependent measure of proportionate use. This analysis revealed a main effect for time horizon grade, $F(3, 294) = 70.74$, $p < .001$, $MSE = .09$, as well as a significant interaction between grade and time horizon, $F(3, 294) = 2.25$, $p < .01$, $MSE = .09$. Figure 10.4 presents the means for this interaction. Post-hoc Tukey tests ($p < .01$) revealed no significant differences in proportion of use of any time horizon by participants of different grades, despite the appearance of a trend for 12th graders to list goals with longer time horizons. Almost no one described next-day, category-cued goals.

It may be that 12th graders, surveyed the summer after completing high school, are particularly aware of their own goals and particularly focused on the long term (e.g., thinking in terms of the next year or the rest of their life). This result certainly echoes Nurmi's (1991) idea that adolescents are strongly future oriented. To see whether this focus is related to graduation or to attaining a specific level of cognitive development, more work would be needed.

Hypothesis 4: Older Adolescents Will Have Goals of Greater Complexity, Controllability, and Realism in Comparison With the Goals of Younger Children

Four research assistants and I independently coded each goal listed along five dimensions. These were: (a) *complexity* (having lots of parts or subgoals);

[2]Because the data were proportions, and thus summed to one for every respondent, I omitted the category *next day* from the ANOVA.


first
third
fifth
eighth
twelfth
Proportion
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
week
month
year
life
Time Horizon

FIG. 10.4.

(b) *difficulty* (degree of effort required to achieve the goal); (c) *specificity* (how clear it is when the goal has been achieved); (d) *controllability* (degree to which the achievement of the goal is under the sole control of the participant); and (e) *realism* (plausibility of achieving the goal). The overall interrater reliabilities, computed with coefficient alpha over five raters, ranged from .38 to .87, with a median of .76.

Mean ratings for each dimension for each participant were computed, separately for time-cued and category-cued goals. These mean ratings were subjected to a 2 (gender) × 5 (grade) × 2 (cue type) × 5 (rating scale) mixed ANOVA, with repeated measures on the last two factors. This analysis showed main effects for both rating, $F(4, 380) = 319.43$, $p < .001$, $MSE = .96$, and cue type, $F(1, 95) = 20.57$, $p < .001$, $MSE = .66$, as well as several interactions.

The first interactions of interest are between rating and cue type, $F(4, 380) = 11.22$, $p < .001$, $MSE = .54$, and a 3-way interaction between these two factors and grade, $F(16, 380) = 1.84$, $p < .001$, $MSE = .54$. Complexity ratings rose with age for both time-cued and category-cued goals. Difficulty ratings seem to follow this general trend (except for 12th graders). Specificity ratings and ratings of realism of goals show no discernable pattern with age. The controllability ratings showed an increasing pattern with age for time-cued goals, but not for category-cued goals. Post-hoc Tukey tests ($p < .01$) showed reliable differences between time- and category-cued goals only in the specificity ratings, and only for students completing Grades 3, 5, and 8.

These results provide mixed support for Hypothesis 4. In particular, ratings of specificity and realism show little developmental trend, contrary to prediction, whereas ratings of complexity and difficulty do support the prediction, and ratings of controllability vary by type of cue.

Taken as a whole, the results of this study suggest that the number of goals generated rises with age, particularly when the prompts to generate goals are not content specific. The kinds of goals generated also changes as a function of age, with older children generating proportionately fewer leisure time goals such as hobbies or sports. Older children and adolescents generate more complex goals and goals that require more effort to achieve, but not more specific or realistic goals. There are mixed results as to an increase with age of controllability of goals generated.

STUDY 2: INDIVIDUAL DIFFERENCES IN PLANNING TO MEET GOALS

Generating goals in an interview tells us something about children's and adolescents' goals in everyday life. However, it leaves open the question of whether goals are actually met. In a second set of studies, individual differences in older adolescents' goal setting and scheduling were examined.

I began by looking at the ways in which different adolescents described their own planning abilities, that is, their ability to budget their time and other resources in the service of fulfilling their goals. In part, I was guided by the common image of the "overcommitted" adolescent, an oft-reported persona found frequently on college and high school campuses. I used a previously developed instrument (Simons & Galotti, 1992) that assesses common planning practices and abilities such as budgeting time, keeping written lists of things to do, generating alternative ways of accomplishing a given goal, or attending to details. To examine individual differences in goal setting, I divided samples of participants into three groups, according to their score on this "planning behaviors" instrument. The top third of the group were designated "good" planners; the middle, "average" planners; and the bottom, "poor" planners, although it must be kept in mind that the designations are relative to one another, and not absolute.

In addition to describing behavioral differences in self-reported good and poor planners in setting and achieving goals, I also examined the ways in which they described the purposes of their goals. I wondered whether, for instance, poorer planners focus more on short-term, immediate concerns, attempting to fulfill the "urgent" but "unimportant" tasks in front of them (Covey, A. R. Merrill, & R. R. Merrill, 1994) whereas good planners take a longer view. Alternatively, I looked at whether better planners describe their goals more specifically (Locke & Latham, 1990), or set more or less complex goals than do less good planners.

Undergraduate participants described their goals for the upcoming week one Sunday night. That Thursday, they were asked to describe their goals for the following day (Friday). On Saturday, each participant was given a typed list of both sets of goals they had previously listed and asked to indicate which goals they had accomplished. They were also asked to rate each of their goals on different rating scales, including whether the goal was a long- or short-term one, how specific the goal was, how complex the goal was, and how important the goal was. Of particular interest were three other ratings: (a) to what extent the goal reflected a desire to show themselves that they possessed certain abilities and qualities; (b) to what extent the goal reflected a desire to show others that they possessed certain abilities and qualities; and (c) to what extent the goal reflected a desire to learn about and develop certain abilities and qualities. These ratings were derived from Dweck's work on learning and performance goals (Dweck & Leggett, 1988; Elliott & Dweck, 1988).

Surprisingly, self-reported good planners did not set more goals than did self-reported poor planners, either for the week or for the day. Nor did good planners complete more goals or a higher percentage of goals. Moreover, students with different overall planning scores did not differ in their ratings of their goals' complexity, importance, specificity, or time horizon for completion.

However, goal ratings of the learning and/or performance aspects of the goals did correlate significantly with planning scores. Moreover, the correlations were particularly strong (about .45) with both the "show yourself you possess certain abilities and qualities" and the "learn about and develop certain abilities and qualities" items. This in turn suggests that better planners put their goals into a broader context, and focus on mastery more so than do less good planners.

CONCLUSIONS

I take six points from these studies. The first is that older children set more goals than do younger children. This finding is rather unsurprising, given what we know about the large changes both in cognition and in psychosocial development between middle childhood and adulthood. Teasing apart how much of the increase is due to which developmental source will be left for future work.

The second point is that older adolescents, relative to elementary school children, set fewer goals having to do with leisure activities. Perhaps this is because more of their time is consumed with school, work, or chores. Roles within a family or within the work force differ for the two populations, and it may be that leisure time differences themselves explain this difference.

A third point is that there is an increasing trend for older students to focus much more heavily on lifetime goals than do younger students. Given the findings of Verstraeten (1980) and Klineberg (1967), this result is to be expected, and confirms the results they report.

More interesting is the fourth point, that in many measures (e.g., number of goals set, categories of goals set, some of the ratings of goals) the points of biggest difference seem to be between 3rd graders and 5th graders, and again between 8th and 12th graders. Large differences lead one to wonder about discontinuities, which are often regarded as a symptom of underlying qualitative change. Of course, a cross-sectional study cannot address this, but the trends in the data warrant examination in future studies. The first discontinuity does not correspond to any known developmental stage theory. It may, however, correspond to the distinction made by educators between primary elementary school grades (K to 3) and intermediate grades (4 to 6). We could speculate that there may increased academic responsibilities placed on intermediate students, either in the classroom, or at home by parents, or both, and that these responsibilities affect one's goal setting. Further work would be needed to explore this account.

The second discontinuity, between 8th and 12th graders might be explained by a general cognitive change occurring in adolescence. Alternatively, it may be that 12th graders, having recently experienced a major life

transition (the end of high school), are especially preoccupied with future life goals such as career and family. Again, future work would be needed to explore this question.

The fifth point is that only selected aspects of goals change with age. Specifically, ratings of specificity and realism do not change with age over the range of ages studied. What does increase are complexity, difficulty, and (to a lesser degree), controllability.

Presumably, achieving more complex and more difficult goals requires a more sophisticated ability to marshal resources in the service of a goal. This would imply that increases in planning abilities correlate with changes in goal setting, although in ways not yet specified. However, the sixth point I take from the data is that in the end, better planners are one who set goals with broader purposes—especially ones having to do with mastery and self-improvement. However, better planners do not necessarily set more goals, or different kinds of goals, or goals with different time horizons.

Some of these findings are broadly reminiscent of popular press accounts of what it takes to lead a well-balanced and organized life. Covey et al. (1994) argued that such a life requires that people identify their core goals and values—their "mission" statement—and then align activities, appointments, and so on, with such values. Obvious next steps in the research program are to investigate how children and adolescents come to create such a mission statement. If they do, when they do, what are the correlates of doing so? A second objective would be to investigate the fit between goal setting, planning, and one's mission statement, and to see how understanding of the interrelationships among the three develops. Such studies would be best performed longitudinally and in a variety of domains—academic, social, leisure, religious, to name a few.

What light does this picture of goal setting in children and adolescents shed on their decision making? Again, the interpretations I offer are preliminary and speculative, and will need testing in future work. It seems, though, that having more personal goals would make personal decision making more complicated. The more different goals I have, the more different objectives might be relevant in considering options for any major decision. This may account for why the decision making of an 8-year-old, who wants only to "have a fun time over the summer," is so much less complicated than that of a college student who wants to "explore a possible career, earn enough to pay for books and board for fall semester, live in an air-conditioned apartment in the hip part of a city, and see a lot of my friends." What one chooses to do in the first case is guided by only one set of criteria, whereas in the second case, there are multiple sets of criteria.

Future time perspective differences also may cause one to frame a personal decision differently. If one is only looking for a summer job that will provide a good salary, then one does not try to consider the options in terms

of one's career goals, the chances to network with future employers, or the ability to acquire skills that shore up a resume. However, if a decision maker is thinking ahead to the rest of his or her life (or even ahead to a first "real" job), then the framing of the summer job decision could be very different.

Cognitive developmental researchers need to understand better the relationships between goal setting and making decisions. Although the first is seen as a guide to the second (Beach, 1993), we need to understand how that relationship unfolds over different developmental periods, and whether there are stable individual differences in the relationship (e.g., as a function of cognitive style or ability, cultural background, level of education, personality, or temperament). I hope that decision-making researchers will begin to recognize the importance of these relationships, and to integrate study of them into their research programs.

ACKNOWLEDGMENTS

Grateful acknowledgment is made to the following individuals for their help in data collection, transcription, coding, and/or analysis in one or both of the studies described: Kathryn Ainsworth, Hope Altenbaumer, Sarah Angstrom, Rebecca Hurwitz, Karen Jacobs, Beth Lavin, Dianna Murray-Close, Megan Robb, Jason Schickli, and Dan Simons. I thank Janis Jacobs, Paul Klaczynski, and Hope Altenbaumer for comments on earlier drafts.

REFERENCES

Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin, 120,* 338–375.

Baker-Sennett, J., Matusov, E., & Rogoff, B. (1993). Planning as developmental process. In H. W. Reese (Ed.), *Advances in child development and behavior, 24,* 253–281.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44,* 1175–1184.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52,* 1–26.

Beach, L. R. (1993). Broadening the definition of decision making: The role of prechoice screening of options. *Psychological Science, 4,* 215–220.

Beach, L. R. (Ed.). (1998). *Image theory: Theoretical and empirical foundations.* Mahwah, NJ: Lawrence Erlbaum Associates.

Berg, C. A., Strough, J., Calderone, K., Meegan, S. P., & Sansone, C. (1997). Planning to prevent everyday problems from occurring. In S. L. Friedman & E. K. Scholnick (Eds.), *The developmental psychology of planning* (pp. 209–236). Mahwah NJ: Lawrence Erlbaum Associates.

Byrnes, J. P. (1998). *The nature and development of decision making: A self-regulation model.* Mahwah, NJ: Lawrence Erlbaum Associates.

Byrnes, J. P., Miller, D. C., & Reynolds, M. (1999). Learning to make good decisions: A self-regulation perspective. *Child Development, 70,* 1121–1140.

Carroll, A., Durkin, K., Hattie, J., & Houghton, S. (1997). Goal setting among adolescents: A comparison of delinquent, at-risk, and not-at-risk youth. *Journal of Educational Psychology, 89,* 441–450.

Covey, S. R., Merrill, A. R., & Merrill, R. R. (1994). *First things first: To live, to love, to learn, to leave a legacy.* New York: Simon & Schuster.

Covington, M. V. (2000). Goal theory, motivation, and school achievement: An integrative review. *Annual Review of Psychology, 51,* 171–200.

Dweck, C. S. (1999). *Self theories: Their role in motivation, personality, and development.* Philadelphia, PA: Psychology Press.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95,* 256–273.

Earley, P. C. (1985). Influence of information, choice and task complexity upon goal acceptance, performance, and personal goals. *Journal of Applied Psychology, 70,* 481–491.

Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 1017–1095). New York: Wiley.

Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54,* 5–12.

Ellis, S., & Siegler, R. S. (1997). Planning as a strategy choice, or why don't children plan when they should? In S. L. Friedman & E. K. Scholnick (Eds.), *The developmental psychology of planning* (pp. 183–208). Mahwah, NJ: Lawrence Erlbaum Associates.

Erikson, E. H. (1968). *Identity: Youth and crisis.* New York: Norton.

Friedman, S. L., & Scholnick, E. K. (Eds.). (1997). *The developmental psychology of planning.* Mahwah, NJ: Lawrence Erlbaum Associates.

Galotti, K. M. (2002). *Making decisions that matter: How people face important life choices.* Mahwah, NJ: Lawrence Erlbaum Associates.

Gardner, W., & Rogoff, B. (1990). Children's deliberateness of planning according to task circumstances. *Developmental Psychology, 26,* 480–487.

Gauvain, M., & Rogoff, B. (1989). Collaborative problem solving and children's planning skills. *Developmental Psychology, 25,* 139–151.

Harter, S. (1998). The development of self-representations. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 553–617). New York: Wiley.

Havighurst, R. J. (1972). *Developmental tasks and education.* New York: McKay.

Hudson, J. A., Shapiro, L. R., & Sosa, B. B. (1996). Planning in the real world: Preschool children's scripts and plans for familiar events. *Child Development, 66,* 984–998.

Hudson, J. A., Sosa, B. B., & Shapiro, L. R. (1987). Scripts and plans: The development of preschool children's event knowledge and event planning. In S. L. Friedman & E. K. Scholnick (Eds.), *The developmental psychology of planning: Why, how, and when do we plan?* (pp. 77–102). Mahwah, NJ: Lawrence Erlbaum Associates.

James, W. (1983). *The principles of psychology.* Cambridge, MA: Harvard University Press. (Original work published 1890)

Kahle, A. L., & Kelley, M. L. (1994). Children's homework problems: A comparison of goal setting and parent training. *Behavior Therapy, 25,* 275–290.

Keating, D. P. (1980). Thinking processes in adolescence. In J. Adelson (Ed.), *Handbook of adolescent psychology* (pp. 211–246). New York: Wiley.

Keating, D. P. (1990). Structuralism, deconstruction, reconstruction: The limits of reasoning. In W. F. Overton (Ed.), *Reasoning, necessity, and logic: Developmental perspectives* (pp. 299–319). Hillsdale, NJ: Lawrence Erlbaum Associates.

Klaczynski, P. A., Laipple, J. S., & Jurden, F. H. (1992). Educational context differences in practical problem solving during adolescence. *Merrill-Palmer Quarterly, 38,* 417–438.

Klaczynski, P. A., & Reese, H. W. (1991). Educational trajectory and "action orientation": Grade and track differences. *Journal of Youth and Adolescence, 20,* 441–462.

Klineberg, S. L. (1967). Changes in outlook on the future between childhood and adolescence. *Journal of Personality and Social Psychology, 7,* 185–193.

Kruglanski, A. W. (1996). Goals as knowledge structures. In P. M. Gollwitzer & J. E. Bargh (Eds.), *The psychology of action* (pp. 599–618). New York: Guilford.

Little, B. R. (1998). Personal project pursuit: Dimensions and dynamics of personal meaning. In P. T. P. Wong & P. S. Fry (Eds.), *The human quest for meaning: A handbook for research and clinical applications* (pp. 193–212). Mahwah, NJ: Lawrence Erlbaum Associates.

Locke, E. A. (1982). Relation of goal level to performance with a short work period and multiple goal levels. *Journal of Applied Psychology, 67,* 512–514.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance.* Englewood Cliffs, NJ: Prentice Hall.

Lysyuk, L. G. (1998). The development of productive goal setting with 2- to 4-year-old children. *International Journal of Behavioral Development, 22,* 799–812.

Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology, 3,* 551–558.

Meece, J. L., Blumenfeld, P. C., & Hoyle, R. H. (1988). Students' goal orientations and cognitive engagement in classroom activities. *Journal of Educational Psychology, 80,* 514–523.

Miller, G. A., Galanter, E., & Pribram, K. H. (1960). *Plans and the structure of behavior.* New York: Henry Holt & Company.

Moshman, D. (1999). *Adolescent psychological development: Rationality, morality, and identity.* Mahwah, NJ: Lawrence Erlbaum Associates.

Nurmi, J. (1991). How do adolescents see their future? A review of the development of future orientation and planning. *Developmental Review, 11,* 1–59.

Nurmi, J., Poole, M. E., & Kalakoski, V. (1994). Age differences in adolescent future-oriented goals, concerns, and related temporal extension in different sociocultural contexts. *Journal of Youth and Adolescence, 23,* 471–487.

Nuttin, J. (1985). *Future time perspective and motivation: Theory and research method.* Leuven, Belgium: Leuven University Press.

Pinker, S. (1997). *How the mind works.* New York: W. W. Norton.

Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of Educational Psychology, 92,* 544–555.

Ruble, D. N., & Frey, K. S. (1991). Changing patterns of comparative behavior as skills are acquired: A functional model of self-evaluation. In J. Suls & T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 70–112). Hillsdale, NJ: Lawrence Erlbaum Associates.

Schunk, D. H. (2001). Social cognitive theory and self-regulated learning. In B. Zimmerman & D. Schunk (Eds.), *Self-regulated learning and academic achievement* (pp. 125–151). Mahwah, NJ: Lawrence Erlbaum Associates.

Simons, D. J., & Galotti, K. M. (1992). Everyday planning: An analysis of time management. *Bulletin of the Psychonomic Society, 30,* 61–64.

Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology, 71,* 549–570.

Strough, J., Berg, C. A., & Sansone, C. (1996). Goals for solving everyday problems across the life span: Age and gender differences in the salience of interpersonal concerns. *Developmental Psychology, 32,* 1106–1115.

Verstraeten, D. (1980). Level of realism in adolescent future time perspective. *Human Development, 23,* 177–191.

Von Winterfeldt, D., & Edwards, W. (1986). *Decision analysis and behavioral research.* Cambridge, England: Cambridge University Press.

Wadsworth, M., & Ford, D. H. (1983). Assessment of personal goal hierarchies. *Journal of Counseling Psychology, 30,* 514–526.

Williams, R. L., & Long, J. D. (1991). *Manage your life* (4th ed.). Dallas, TX: Houghton Mifflin.

Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. Zimmerman & D. Schunk (Eds.), *Self-regulated learning and academic achievement* (pp. 1–37). Mahwah, NJ: Lawrence Erlbaum Associates.