

CHAPTER 3

SELF-EFFICACY DEVELOPMENT IN ADOLESCENCES

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Stacie and Meg—juniors at Atlas High School—soon must submit their course requests for next year. They have completed 3 years of science as mandated by the school system and must decide whether to take additional courses. Physics is an option, and although it is not required they believe that taking it may help with college admission. To date they have received similar grades (As and Bs) in science courses. The night before the class sign-up date they discuss the situation with their parents. Meg's dad feels that she should take physics since it will help her understand how the world works. Meg notes that Ms. Blakely (the physics teacher) is not very good. After further discussion, however, Meg concludes that she feels confident about learning physics because she always has been able to learn science in the past and that if she does not understand something she will ask the teacher. So Meg decides to sign up for it. Stacie, on the other hand, tells her parents that she just does not feel smart enough to learn or do well in physics and that because Ms. Blakely is not a good teacher Stacie would not receive much help from her. Stacie also tells her parents that few girls take the course. Under no pressure from her parents, Stacie decides she will not sign up for physics.

Adolescence is the period of time stretching from puberty to the early 20s. It is a time of great changes—physical, cognitive, social, and emotional. Adolescents also experience significant changes in their family relations, school environments, and peer group affiliations, and these changes can have profound effects on adolescents' motivation and learning.

In this chapter, we focus on the development of one type of cognitive factor—*self-efficacy*, defined as one's perceived capabilities for learning or performing actions at designated levels (Bandura, 1997). The manifestation of self-efficacy is evident in the opening scenario. Whereas Stacie professes self-doubts about her capability to learn and achieve well in physics, Meg expresses higher self-efficacy and believes that she can learn with the aid of her teacher. It is not surprising that Meg will take physics and Stacie will avoid it.

Although self-efficacy is a type of cognition, theory and research support the idea that it can affect other facets of development (e.g., social, emotional, behavioral) and that it is influenced by various personal, social, and contextual variables (Bandura, 1997). Self-efficacy affected Stacie's and Meg's decisions about physics, and their self-efficacy undoubtedly was influenced by many factors including their perceptions of the teacher and of girls who take physics. The changes in self-efficacy as adolescents develop have important implications for their school performances, friendships, and career and vocational choices.

The next section provides a theoretical background of self-efficacy framed within the context of social cognitive theory (Bandura, 1986). The sources of self-efficacy information and the consequences of self-efficacy are described. We also discuss methods of assessing self-efficacy. Research on the development of self-efficacy and related constructs (e.g., perceived ability and perceptions of competence) is summarized. We address self-efficacy development stemming from three influences: families, schooling, and peers. The implications of the theory and research findings for teaching and parenting are discussed and we suggest ways of helping adolescents develop self-efficacy in important areas of their lives.

THEORETICAL BACKGROUND

Social Cognitive Theory

Self-efficacy is grounded in the larger theoretical framework of *social cognitive theory*. This theory postulates that human functioning results from interactions among personal factors (e.g., cognitions, emotions), behaviors, and environmental conditions (Bandura, 1986, 1997). From this perspective, self-efficacy affects one's behaviors and the environments

with which one interacts, and is influenced by one's actions and conditions in the environment.

Self-efficacy is hypothesized to affect individuals' task choices, effort, persistence, and achievement (Bandura, 1997; Schunk, 1995). Compared with learners who doubt their capabilities, those who feel self-efficacious about learning or performing a task competently are apt to participate more readily, work harder, persist longer when they encounter difficulties, and achieve at higher levels.

Information used to appraise self-efficacy is acquired from four primary sources: actual performances, vicarious experiences, forms of persuasion, and physiological reactions. Students' own performances offer the most reliable guides for gauging self-efficacy; effects of the other sources are more variable. In general, successes raise and failures lower self-efficacy, although an occasional failure (success) after some successes (failures) is unlikely to have much impact.

Learners acquire self-efficacy information from knowledge of others' performances through social comparisons. Similar others offer the best basis for comparison. Students who observe similar peers learn a task may also believe that they can learn it. Such vicarious information typically has a weaker effect than actual performance because vicariously-induced self-efficacy can be negated by subsequent performance failure.

Persuasive information, as in verbal encouragement from others (e.g., "You can do it!"), can raise self-efficacy, but its effects can be transitory if subsequent performance turns out differently. Learners also acquire self-efficacy information from physiological indicators (e.g., heart rate, feelings of anxiety). Such symptoms can signal that one lacks skills; conversely, when learners experience fewer emotional symptoms they may feel more self-efficacious.

The effects of information acquired from these sources on self-efficacy do not occur automatically; rather, information must be cognitively weighed and appraised. Learners typically use multiple factors such as perceptions of their abilities, prior successes, perceived task difficulty, amount of effort expended, time persisted, amount of help received, perceived similarity to models, credibility of persuaders, and type and intensity of emotional symptoms (Schunk, 1995).

Self-efficacy is not the only influence on learning and achievement, nor is it necessarily the most important one. No amount of self-efficacy will produce a competent performance if requisite *knowledge and skills* are lacking. *Outcome expectations*, or beliefs about the anticipated consequences of actions, also are critical. Students are apt to engage in activities that they believe will result in favorable outcomes and avoid those with perceived negative consequences. *Values* also are important; learners will engage in activities that they believe are important or which have desired outcomes

(Eccles et al., 1983; Meece, Wigfield, & Eccles, 1990; Wigfield & Eccles, 1992). Students may engage in an activity because they value it or its outcomes even if they do not feel highly self-efficacious about succeeding.

CONTEXTUAL FACTORS AFFECTING ADOLESCENTS' SELF-EFFICACY

Development takes place in many different social contexts. During adolescence there are important changes in young people's family, school, and peer environments. Influences associated with each of these social contexts may have profound effects on adolescents' beliefs about their capabilities of succeeding in and out of school.

Beginning in infancy, *families* provide experiences that influence children's self-efficacy. Families differ in *capital*, such as financial or material resources (e.g., income), human or nonmaterial resources (e.g., education), and social resources (e.g., social networks and connections) (Bradley & Corwyn, 2002; Putnam, 2000). In general, families with greater capital provide richer experiences that raise children's self-efficacy. Families also differ in the types of trajectories onto which they launch their children, such as by enrolling them in classes or camps where they receive academic and social benefits and by shaping children's perceptions of their ability to succeed in school. Families differ in how well they motivate their children to attempt challenges and to achieve, the types of models available to children, and the extent to which they teach children strategies to cope with difficulties. Self-efficacy will be enhanced when children are motivated to achieve, when they are exposed to positive academic and social models, and when they are taught strategies that they can use to overcome challenges.

Schooling contains many potential influences on adolescents' self-efficacy including how instruction is structured, the ease or difficulty of learning, feedback about performance, competition, grading practices, amount and type of teacher attention, and school transitions. For example, rigid instructional sequences frustrate some students who have difficulty learning and increasingly fall behind. Learning difficulty signals that one may lack ability, which decreases self-efficacy. Performance feedback that conveys to students their progress can raise self-efficacy but may lower self-efficacy when it indicates how far behind they are. Classrooms with much competition and social comparison can decrease self-efficacy among students who feel they are deficient. Teacher assistance can aid learning, but when teachers provide too much help students may believe that the teachers think they lack the ability to learn, which lowers self-efficacy. School transitions (e.g., middle to high school) bring many changes

in teacher relations, peer groups, classes, and grading practices—any of which can affect self-efficacy.

The influence of *peers* is especially potent among adolescents because peers contribute significantly to their socialization and views of themselves. With development peers assume much of the socialization function formerly carried out by parents and caregivers. Peer influence operates extensively through *peer networks*, or large groups of peers with whom students associate. Students in networks tend to be similar in many ways (Cairns, Cairns, & Neckerman, 1989; Hamm, 2000; Ryan, 2000), and perceived similarity enhances peer influence. Peer influence on self-efficacy also occurs because adolescents are unfamiliar with many tasks and have little information other than their friends' behaviors with which to gauge their own self-efficacy.

Assessment of Self-Efficacy

Self-efficacy beliefs are domain specific and refer to perceptions of capabilities to learn or perform given tasks within specified domains (Pajares, 1996a). Some examples are self-efficacy for performing operations on different types of radical expressions, self-efficacy for comprehending reading passages of varying levels of difficulty, self-efficacy for swimming 100 meters in different times, self-efficacy for safely driving an automobile under different conditions, self-efficacy for learning technical terms in biology, and self-efficacy for performing various household chores.

In gauging their self-efficacy, people assess their skills and capabilities to translate those skills into actions. Possessing skill can raise self-efficacy, which in turn can lead to further skill acquisition, but skill and self-efficacy are not synonymous in meaning. How people act can often be predicted better by their self-efficacy (i.e., the beliefs about their capabilities) than by their actual skills (Bandura, 1986).

Self-efficacy also depends on students' intelligence and abilities. In general, high-ability students feel more efficacious about performing well than do low-ability students, but self-efficacy is not a direct reflection of students' intelligence and abilities. Collins (1982) identified high-, average-, and low-ability students in mathematics; within each level she found students with high and low mathematical self-efficacy. She tested students on mathematical achievement. Although ability level related positively to achievement, regardless of ability level, students with high self-efficacy demonstrated higher achievement and persistence on difficult problems.

Although self-efficacy differs from outcome expectations, the two are often related. Students with high self-efficacy expect—and usually

receive—positive outcomes for their actions. But there is no automatic relation. Students can expect positive outcomes from an action (e.g., a high grade for an excellent term paper) but doubt their self-efficacy to produce the excellent term paper.

Self-efficacy beliefs are sensitive to differences in contextual factors (e.g., changing environmental conditions) and personal factors (e.g., level of motivation, affective states). As such, self-efficacy differs from many other expectancy beliefs in that self-efficacy is both more task- and situation-specific and individuals make use of self-efficacy beliefs in reference to some type of goal (Pajares, 1997; Schunk & Pajares, 2002). Self-efficacy generally is assessed at a more situationally-specific level than are other expectancy constructs (e.g., self-concept), which form more global and general self-perceptions. For example, researchers might assess self-efficacy for successfully long jumping various distances, solving different types of algebra problems, and interacting in various types of social situations. Due to their greater specificity, self-efficacy beliefs often are stronger predictors of achievement outcomes when compared with other competence-related perceptions (Bandura, 1997; Bong & Clark, 1999; Pajares, 1996a; Valentine, DuBois, & Cooper, 2004).

Much self-efficacy research has followed Bandura's original model of identifying tasks in a domain, ordering them in terms of difficulty, having individuals judge their self-efficacy for learning or performing these tasks, and then asking them to perform the same or similar tasks. Self-efficacy judgments then can be used to predict subsequent behaviors reflecting motivation, learning, and performance. Educational researchers have modified the original methodology somewhat, but self-efficacy usually is assessed at a level of specificity that corresponds to the criterion task within the domain of functioning being analyzed (Schunk & Pajares, 2004).

Although it might seem that motivation and learning benefit from a realistic sense of self-efficacy, Bandura (1986, 1997) contends that the most functional self-efficacy judgments are those that slightly exceed what one actually can do. This slight overestimation raises motivation and achievement. A challenge for educators is to facilitate optimism in students while ensuring that they have the skills to be successful.

RESEARCH ON SELF-EFFICACY IN ADOLESCENCE

In this section, we discuss correlational and experimental research on self-efficacy during adolescence in five areas: developmental changes, group differences, schooling, peers, and families (Table 3.1). Although adolescence extends beyond age 18, we focus our discussion on the changes that occur during the middle and high school years. Much developmental

Table 3.1. Key Areas of Research on Adolescents' Self-Efficacy and Related Constructs

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- Developmental changes
 - Group differences
 - Schooling
 - Peers
 - Families
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research has not employed self-efficacy *per se* but rather variables that are conceptually similar to self-efficacy, such as perceived competence and perceptions of abilities. Accordingly, our discussion includes research that examined the roles of these conceptually similar constructs.

Developmental Changes

The cognitive, physical, and social changes associated with adolescence have important implications for how young people view their capabilities. Research has shown that adolescents' self-descriptions tend to be more abstract, multidimensional, and hierarchical. These changes are believed to be due in part to adolescents' increased abilities for cognitive abstraction, reflection, and social comparison (Harter, 1998). As teens become more skilled at coordinating conflicting information and expectations, they form more stable and integrated views of their capabilities, values, and attributes.

Researchers have documented several interesting changes in young people's competence and efficacy beliefs during adolescence. Research using academic or domain-specific measures of competence shows that self-perceptions of competence begin to decline in Grade 7 or earlier (Eccles, Wigfield, & Schiefele, 1998; Wigfield et al., 1997). Declines in competence beliefs are particularly evident at the transition to middle school—especially in mathematics—and continue into high school (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002).

In contrast, research using measures of self-efficacy have shown mixed results. Some studies also show this decline in efficacy beliefs (Anderman, Maehr, & Midgley, 1999; Pajares & Valiante, 1999; Urdan & Midgley, 2003), whereas others have found an increase in language and mathematics self-efficacy with development (Shell, Colvin, & Bruning, 1995; Zimmerman & Martinez-Pons, 1990). The inconsistency of findings across developmental studies may be due to differences in the specificity of self-efficacy and competence measures. Also, most competence measures

include a social comparison component. Competence perceptions may be more dependent on an adolescent's relative standing with peers, rather than his or her prior experience with a particular course or task (Bong & Clark, 1999).

Group Differences

Adolescence is an important time for identity formation (Erikson, 1968; Waterman, 1999). As part of this process, adolescents—with their increased cognitive abilities and social experiences—begin to consider cultural expectations and standards for behavior. During early and middle adolescence young people are vulnerable to social standards for behavior (Harter, 1999) and strongly influenced by cultural stereotypes about the capabilities and traits of different social groups. Although social stereotypes in the United States are changing, they continue to portray women and non-White minorities as less skilled and academically oriented than White men, especially with regard to mathematics, science, and technology (Meece & Scantlebury, in press). If endorsed, these social stereotypes can shape adolescents' identities as learners.

Most research on group differences in self-efficacy has focused on gender and ability, whereas only a few studies have examined the role of socioeconomic or ethnic background. With regard to gender, studies reveal mixed findings. Some researchers report gender differences in self-efficacy favoring adolescent boys (Anderman & Young, 1994; Meece & Jones, 1996; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1990), some report differences favoring girls (Britner & Pajares, 2001), and others reveal no gender differences (Pajares, 1996b; Pajares & Graham, 1999; Roeser, Midgley, & Urda, 1996; Smith, Sinclair, & Chapman, 2002). These findings differ from longitudinal studies of academic competence beliefs, which report gender differences in sex-typed domains such as mathematics and language arts during adolescence (Eccles et al., 1998; Jacobs et al., 2002; Marsh, 1989; Wigfield, Eccles, Mac Iver, Ruman, & Midgley, 1991). Gender differences may be more prevalent in measures that elicit group comparisons or evaluation of worth (e.g., "I am good at math"). In making these assessments, stereotypes or feedback from others may lead to biased assessments.

The few studies that have examined ethnic differences in adolescents' self-efficacy report mixed findings. Britner and Pajares (2001) report no significant differences between middle school African American and White adolescents' self-concepts and self-efficacy for regulating their learning in science. Roeser et al. (1996) found no significant ethnic differences in middle school students' academic self-efficacy. Other studies,

however, show that African American adolescents have lower mathematics self-efficacy than do their White peers (Pajares & Kranzler, 1995), and Hispanic high school students report lower writing self-efficacy than do non-Hispanic students (Pajares & Johnson, 1996). Inconsistencies in findings may be due to the specificity of the self-efficacy beliefs assessed, as well as to students' abilities and socioeconomic backgrounds. In studying ethnic differences it is essential to separate race from other background characteristics that may influence self-efficacy (Graham, 1994). It also is important to move away from race comparative studies to examine the processes by which self-efficacy beliefs are formed and affect achievement outcomes.

Schooling

Adolescents' school experiences help shape their self-efficacy beliefs. With cognitive maturity, adolescents are better able to interpret and integrate multiple sources of information about their competencies, and they have a much more differentiated view of their abilities (Eccles et al., 1998). There often is a stronger relation between performance feedback and competence beliefs for adolescents than for younger children. Additionally, as identity processes unfold, adolescents tend to compare themselves with others to find their unique place within their peer group. When an adolescent is not performing as well as his or her peers within a specific academic or interpersonal domain, social comparisons can have a negative impact, especially when performance in this area is valued by the adolescent, peers, or family members.

Research supports the hypothesized relation of self-efficacy to academic motivation (effort, persistence) and achievement. Among students of different ages, significant and positive correlations have been obtained between self-efficacy for learning (assessed prior to instruction) and subsequent motivation during learning (Schunk, 1995). Self-efficacy for learning also correlates positively with post-instruction self-efficacy and skillful performance (Schunk, 1995). Studies across different content domains (e.g., reading, writing, mathematics) using children and adolescents have yielded significant and positive correlations between self-efficacy and academic achievement (Lent, Brown, & Larkin, 1986; Multon, Brown, & Lent, 1991; Pajares, 1996a; Schunk, 1995).

Bouffard-Bouchard, Parent, and Larivée (1991) found that high school students with high self-efficacy for problem solving demonstrated greater performance-monitoring and persistence than did students with lower self-efficacy. Among college students, Zimmerman and Bandura (1994) obtained evidence that self-efficacy for writing correlated positively with

goals for course achievement, self-evaluative standards (satisfaction with potential grades), and actual achievement.

Periods of transition in schooling can cause changes in self-efficacy (Schunk & Pajares, 2002). Much research has investigated the transition from elementary to junior high/middle school with its many changes in teachers, peers, classes, and grading criteria (Eccles & Midgley, 1989; Eccles, Midgley, & Adler, 1984). Young adolescents often experience declines in their competence and efficacy beliefs as they make the transition from elementary to middle school (Anderman et al., 1999; Anderman & Midgley, 1997; Eccles et al., 1983; Harter, Whitesall, & Lowalski, 1992; Urdan & Midgley, 2003; Wigfield et al., 1991); however, negative changes in self-perceptions are not inevitable and may result from changes in the school environment.

Studies reveal that elementary and secondary classrooms tend to have different goal structures. Compared with elementary students, middle school students perceive their learning environment as less focused on learning and mastery and more focused on competition and ability differences (Anderman et al., 1999; Anderman & Midgley, 1997; Urdan & Midgley, 2003; Urdan, Midgley, & Anderman, 1998). When classroom environments emphasize competition and normative evaluation (performance goals) rather than individual mastery and self-improvement, adolescents can experience a decline in their self-efficacy. In contrast, classroom environments that emphasize the importance of effort, meaningful learning, self-improvement, collaboration, and student interests help adolescents maintain positive perceptions of their efficacy and competence (Anderman & Midgley, 1997; Anderman & Young, 1994; Greene, Miller, Crowson, Duke, & Akey, 2004; Meece, 1991, 1994; Meece, Herman, & McCombs, 2003; Roeser et al., 1996; Urdan & Midgley, 2003).

Research on the effects of different classroom environments is consistent with experimental studies designed to examine relations between instructional conditions and adolescents' self-efficacy beliefs. Social cognitive theory predicts that at the outset of an activity students differ in their self-efficacy for learning as a function of their prior experiences, personal qualities, and social supports (e.g., extent that parents and teachers encourage them, facilitate their access to learning resources, and teach them strategies for learning) (Schunk, 1995). As students engage in activities they are affected by personal (e.g., goals, cognitive processing) and situational influences (e.g., instruction, feedback). These factors provide students with cues about how well they are learning, which they then use to gauge self-efficacy for continued learning.

Some instructional conditions that have been shown to develop self-efficacy among adolescents are proximal and specific learning goals, instruction on learning strategies, social models, performance and attri-

butional feedback indicating progress, and rewards contingent on improvement (Schunk, 1995). These processes are hypothesized to affect self-efficacy and motivation through the common mechanism of informing students of their progress in learning.

Schunk and Lilly (1984) gave middle school students instruction on a novel mathematical task. Prior to the instruction girls judged self-efficacy for learning lower than did boys. Following the instruction (which included performance feedback), girls and boys did not differ in achievement or self-efficacy for solving problems. There also were no differences in male and female students' problem solving during instruction. The performance feedback indicating that learners were successful overrode the girls' preconceptions about learning mathematics.

Zimmerman and Kitsantas (1996, 1997) found that providing learning (process) goals raised self-efficacy and self-regulation during dart throwing. High school girls were assigned to a process-goal condition and asked to focus on the steps in dart throwing; others were assigned to a product-goal condition and asked to concentrate on their scores. After each throw some girls self-recorded progress by writing down steps accomplished properly or the outcome. Process-goal girls demonstrated higher self-efficacy and performance than did product-goal girls (Zimmerman & Kitsantas, 1996), and self-recording enhanced these outcomes. Zimmerman and Kitsantas (1997) replicated these results and also included a shifting-goal group where girls pursued a process goal, but, once they could perform the steps, they switched to a product goal of attaining high scores. The shifting goal led to the highest self-efficacy and performance.

Schunk and Ertmer (1999) pretested students on self-efficacy and performance of computer applications and on how well and often they applied self-regulation strategies while learning computer skills (e.g., set goals, use appropriate manuals). Students were assigned to a process (learn the applications) or product (do the work) goal condition; within each condition half of the students evaluated their progress during the instruction on computer applications. The process goal, with or without self-evaluation, led to higher self-efficacy and strategy competence and frequency than did the product goal with no self-evaluation. Students who received the process goal with self-evaluation judged self-efficacy higher than did process-goal students who did not receive self-evaluation and product-goal students who self-evaluated. Among self-evaluation students, those who pursued process goals evaluated their learning progress better than did those who received product goals. These results corroborate those of Schunk (1996), who found with children that self-evaluation combined with process goals is beneficial for self-efficacy and self-regulation.

Taken together, classroom and experimental studies suggest that adolescents, as they are gaining new cognitive abilities, need classroom environments that help them set goals for their learning, support their goal progress, and focus on improvement and mastery. Other research emphasizes the importance of learning environments that are both intellectually challenging and supportive of adolescents' academic development (Anderman, Patrick, Hruda, & Linnenbrink, 2002; McCombs, 2003; Ryan & Patrick, 2001). Meece et al. (2003) found that middle and high school students reported more positive self-efficacy when their teachers used learner-centered instructional practices that promoted higher-order thinking, honored student voices, created supportive relations, and adapted instruction to individual and developmental needs.

Peers

Adolescence brings important changes in young people's peer relations. A growing body of research suggests that adolescents' self-efficacy is strongly influenced by peers (Schunk & Miller, 2002). Observations of peers accomplishing a task can raise observers' self-efficacy and lead them to believe that they also can perform the task. When peers are unsuccessful, observers' self-efficacy may decrease.

Vicarious effects are aided by perceived similarity in areas such as academic or athletic ability, grades, ease or difficulty in learning, background experiences, gender, ethnicity, and interests. Similarity exerts its greatest effects when observers are unfamiliar with the task or setting and must use non-performance sources of information to gauge self-efficacy. This commonly happens among adolescents who are exposed to new classes and content. School transitions that occur with development (e.g., middle to high school) and those caused by family moves create unfamiliarity.

Key social influences on adolescents' self-efficacy are friends and peer networks. Students tend to select their friends and peer groups on the basis of similarity (Ryan, 2000), which enhances the potential influence of modeling. In general, peer similarity is strongest for Asian American and European American adolescents; African American students choose friends who are less similar with respect to academic orientation (Hamm, 2000). Networks help to define students' opportunities for interactions and observations of peers' interactions. Conversations between friends influence their choices of activities, and friends often make similar choices (Berndt & Keefe, 1992).

Peer groups promote motivational socialization (Schunk & Miller, 2002). Kindermann (1993) and Kindermann, McCollam, and Gibson (1996) examined motivation in peer selection and socialization among

children and adolescents. Adolescent peer networks were more complex than were those of children. Most children's networks were dyads, but adolescents tended to have several dyads and triads, as well as larger networks. Among children, networks tended to be same sex, but adolescent groups included members of both sexes. The researchers found a significant decline in academic motivation with development. This decline may be partly a function of the greater diversity of adolescents' peer groups, which increases the likelihood that adolescents will judge themselves negatively relative to some group members.

Among ninth graders, more academically-motivated students had larger peer networks. Changes in adolescents' motivational engagement across the school year were predicted by their peer group membership at the start of the year. Students affiliated with groups high in academic motivation changed positively, whereas those in less-motivated groups changed negatively. Students in highly motivated peer groups that contained members from across grades increased in motivation across the school year, whereas those in low-motivation peer networks that had little grade diversity tended to decrease in motivation. Although this research by Kindermann and colleagues is correlational and does not permit conclusions about causality, the results suggest that peer group socialization may influence the group's academic self-efficacy and motivation (Schunk & Pajares, 2002).

Ryan (2001) found that students end up in peer networks with motivational beliefs similar to theirs at the beginning of a school year. Over the course of the year the peer group influences the group's members, and they tend to become more similar. Altermatt and Pomerantz (2003) report similar findings for grades, competence perceptions, and motivation beliefs (e.g., standards for performance, importance of meeting standards, and preference for challenge). Peer influence was strongest during an academic year, and strongest for reciprocated, rather than unilateral, friendships. Friends also influenced young adolescents' attributions for failure as they moved to a new grade level, when they may be experiencing novel learning situations (Altermatt & Pomerantz, 2003).

Steinberg, Brown, and Dornbusch (1996) conducted a 10-year project that studied several thousand adolescents from when they entered high school until their senior year. These researchers found developmental patterns in the influence of peer pressure on academic motivation and performance. Peer pressure tends to rise during childhood and peaks around Grade 8 or 9 but declines somewhat through high school. A key period is between ages 12 and 16, a time during which parents' involvement in their children's activities often declines thereby enhancing the strength of peer influence. Steinberg et al. (1996) investigated whether adolescents who began high school with similar grades but who became

affiliated with different peer groups remained academically similar. Adolescents in more academically oriented crowds achieved better during high school compared with those in less academically oriented crowds. Not surprisingly, delinquency rates also were associated with peer groups.

To what extent is the frequent decline in adolescents' self-efficacy or perceptions of competence due to peer influence? This is a complex question, and, unfortunately, research findings do not provide a simple answer (Wentzel, Barry, & Caldwell, 2004). Findings suggest that peer groups may contribute to a decline in self-efficacy, but they also may help to maintain self-efficacy or even increase it. Although peers and schooling are important, the academic influence of families also is critical.

Families

Adolescents acquire much self-efficacy information from their families and home environments (Schunk & Miller, 2002). Family influences that promote effective interactions with the environment enhance self-efficacy and competence beliefs. More specifically, parents and caregivers help children build a sense of competence when they provide an environment that offers some challenges, encourages, sets high but realistic aspirations, contains positive role models, provides and supports mastery experiences, and teaches how to deal with difficulties. These effects are reciprocal, because children who are curious and partake of new experiences promote parental responsiveness. Parents who are most successful in promoting positive competence perceptions are able to modify their expectations and demands according to the changing needs, abilities, and dispositions of children as they develop (Eccles et al., 1998).

Families differ in their capital (Putnam, 2000), which often is used to define *socioeconomic status* (Bradley & Corwyn, 2002). We must keep in mind that socioeconomic status is a descriptive rather than an explanatory variable. To say that adolescents from low socioeconomic status families generally have lower self-efficacy is not to explain it. Instead, one must look at the factors and processes that characterize families of different socioeconomic levels (Bronfenbrenner, 1986). Not all children from poor families hold low self-efficacy.

There is much correlational research showing that economic hardship and low parental education relate to difficulties in development and learning (Bradley & Corwyn, 2002; McLoyd, 1990). This seems intuitively plausible, because families with less education and less income cannot provide much capital that helps stimulate cognitive development (e.g., computers, books, travel, games, cultural experiences). Research also suggests that family income levels are positively associated with parents'

expectations for their child's immediate and long-term educational success (Alexander & Entwisle, 1988). Due to a number of different factors, lower income children are more likely to experience learning problems early in school, which can result in lower self-efficacy for learning (Schunk & Miller, 2002). Socioeconomic status is one of the major predictors of early school dropout (Sherman, 1997).

A number of studies have examined the influence of parenting styles on adolescents' academic orientations and school achievement (Steinberg, 2001). Developmental researchers have identified four major types of parenting styles that differ in levels of warmth, responsiveness, and control (Baumrind, 1967; Maccoby & Martin, 1983). In general, an authoritative parenting style has the best combination of warmth, responsiveness, and control to support children and adolescents. It is associated with many positive developmental outcomes including school achievement. These positive effects generally are found across different ethnic groups in the United States, although European American and Hispanic American adolescents may benefit the most from authoritative parenting practices.

Other studies of family socialization processes have examined the influence of parental beliefs on children's self-perceptions of ability and efficacy. Eccles and her colleagues contend that parents serve as important socializers of competence beliefs (Eccles et al., 1983, 1998; Jacobs & Eccles, 1992). Research suggests that parents form perceptions of their children's academic abilities, which in turn affect their children's own competence beliefs. Parents' and children's ability perceptions are significantly related by first grade and grow in strength over the elementary years (Fredericks & Eccles, 2002). Considerable evidence also suggests that children's ability perceptions are more directly related to parental perceptions than to measures of performance or ability (Eccles et al., 1998).

In forming their beliefs, parents tend to rely heavily on objective feedback, such as school grades or performance. However, some evidence suggests that parents' perceptions may be shaped more by cultural stereotypes, especially with regards to the differential abilities of women and men (Frome & Eccles, 1998; Jacobs & Eccles, 1992). For example, studies suggest that parents are more likely to attribute success in mathematics to natural abilities for sons than for daughters, even when the children have equal abilities (Yee & Eccles, 1988). Parents communicate their beliefs through explicit statements about their child's ability, causal attributions for their child's performance, the types of learning activities they encourage or discourage, and their immediate and long-term expectations for their child (Eccles et al., 1998). Recent evidence suggests that parental ability perceptions not only have a strong impact on their chil-

dren's self-perceptions of ability but also predict their career choices and educational plans 12 years later (Bleeker & Jacobs, 2004).

Another critical factor is parents' involvement in their children's education. During adolescence, when parents typically become less involved in children's activities, parents who stay involved can exert indirect influence on children's growth. For example, parents who offer their home as a place where friends are welcome continue the trajectory of steering their children in positive directions. Parents who want their children to be academically focused are apt to urge them to become involved in academic activities (e.g., French club), which can strengthen children's self-efficacy. Fan and Chen (2001) conducted a meta-analysis of research on the relation of parental involvement to children's academic attainments. The results showed that parents' expectations for their children's academic successes related positively to actual academic achievements. It is reasonable to assume that parents convey their expectations to children directly (e.g., verbally) and indirectly (e.g., involving children in academic activities, assisting with homework), which in turn affects children's expectations (self-efficacy) for themselves. The effects of parental expectations on children's achievement seem greatest when a high level of parent involvement exists in the neighborhood (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). Miliotis, Sesma, and Masten (1999) found that, after families left homeless shelters, high parent involvement in children's education predicted children's school success.

Other research shows that parent involvement can influence children's self-regulation, especially the type of instruction that parents provide. When parents give understandable metacognitive instruction children display greater classroom monitoring, participation, and metacognitive talk (Stright, Neitzel, Sears, & Hoke-Sinex, 2001). Such instruction is part of the parental socialization that can prepare children and adolescents for school success. Students who believe they possess the self-regulatory strategies to learn in school are apt to feel more self-efficacious about succeeding.

IMPLICATIONS FOR TEACHING AND PARENTING

Adolescence can be a difficult time for students and for those close to them. The many physical, cognitive, social, emotional, and environmental changes cause stress, and coping can prove difficult. Ideally adolescents will develop a sense of self-efficacy for being able to exert a good measure of control over their lives, or *agency* (Bandura, 2001). A resilient sense of self-efficacy that can overcome difficulties will serve them well during adolescence and beyond (Schunk & Miller, 2002).

Table 3.2. Implications for Teaching and Parenting

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- Understand the multiple influences on self-efficacy
 - Structure curricular and social experiences
 - Involve parents
 - Ensure smooth transitions
 - Create supportive home and classroom environments
 - Teach effective life skills
-

The theory and research on the development of adolescents' self-efficacy provide suggestions for teachers and parents who want to be as helpful as possible. Some key implications are discussed below (Table 3.2).

UNDERSTAND THE MULTIPLE INFLUENCES ON SELF-EFFICACY

Self-efficacy is affected by one's actual performances, vicarious experiences, verbal persuasion, and emotional responses. Adolescents receive much information from these sources in schools, homes, and social environments. Actual performance is the most reliable source, but not the only one. Students weigh and combine information from many sources, and the process whereby they do this is not well understood.

The implication is that to help adolescents develop a resilient sense of self-efficacy teachers and parents should appeal to multiple sources. For example, students who believe that they are not smart enough to learn Algebra 2 may not be swayed much by parents telling them that they did well in Pre-Algebra and Algebra 1. The adolescents may know some peers who did well in the prerequisites but struggled with Algebra 2, and such social information may have an overwhelming effect on their self-efficacy for learning. It may take actual successes, encouragement, tutoring, and observing some similar peers succeeding in Algebra 2, to outweigh the preconception.

Structure Curricular and Social Experiences

Teachers and parents can structure curricular and social experiences to aid the development of adolescents' self-efficacy. With respect to the curriculum, students will feel more self-efficacious about learning when they understand how the new learning builds on what they know. Although self-efficacy is a domain-specific construct, it is plausible that self-efficacy for learning will generalize to other situations when students understand

how the new learning relates to the old. Thus, students are apt to feel more efficacious about learning Algebra 2 content when they understand that it utilizes much of the content they have learned in previous courses.

Social experiences that are likely to enhance adolescents' self-efficacy can be planned. Many teachers use peer models to teach others skills. Low achievers' self-efficacy may not be aided much by observing highly-competent students demonstrate skills. Rather, models whom students believe are similar to themselves (i.e., similarly-achieving students who have mastered the new operations) are apt to exert better effects on observers' self-efficacy for learning.

Although parents and teachers cannot completely control their adolescents' choice of friends, they can steer their children in appropriate directions by enrolling them in activities with the desired type of friends. This helps to ensure that adolescents are exposed to peers whom they will view as similar, which helps to build their self-efficacy.

Involve Parents

Although parent involvement is high in some schools, in others, parents are reluctant to participate. A good first step is to keep parents informed about school activities, such as by sending home frequent notes and e-mails. Where possible, school events can be scheduled at times that parents can attend. Parent involvement can be increased by scheduling field trips to places in the community—such as museums or businesses—and asking parents to serve as tour guides.

Parents also can help ensure that home influences are positive. Many students have difficulty studying because of poor planning or distracting home environments. Schools can schedule sessions in which students learn effective study strategies such as how to budget time, eliminate distractions, and monitor progress on homework and studying for tests.

Ensure Smooth Transitions

School personnel can ease the natural stress of transitions in several ways. Middle school students who will be transitioning to high school can be given tours of the high school and sessions with counselors on schedules and school life. Some schools set up buddy systems, where a current high school student is assigned to each incoming student to help the newcomer with the transition. Students are apt to have higher self-efficacy for succeeding in the new environment when they are familiar with it and believe that others are available to help them overcome difficulties.

Schools can help students establish good planning, organization, and other study skills before students make the transition. In middle schools, for example, students typically change classes and many schools require that students use planners. Good planning becomes essential as adolescents' lives become increasingly busy with school, activities, athletics, school events, studying, and time with friends. Students who believe they possess good planning, organization, and study skills, are apt to feel personally efficacious about performing well in school.

Create Supportive Home and Classroom Environments

Parents and teachers also can enhance young people's self-efficacy by creating supportive environments. Adolescents benefit the most from home environments that are characterized by warmth, fair and consistent standards for behavior, open communication, encouragement for self-reliance and autonomy, and effective monitoring of peer relations and social activities (Steinberg, 2001). Positive effects are found for a wide range of outcomes, including school adjustment and achievement (Wentzel, 2002).

Similarly, adolescents benefit from teachers who are caring and supportive. According to their students, these teachers recognize students' strengths and weaknesses, treat students as individuals, promote respectful interactions, and listen to students and show an interest in their concerns (Wentzel, 1997). Additionally, adolescents need learning environments that are intellectually challenging and supportive of individual progress and mastery. Adolescents report greater self-efficacy and engagement in learning when they believe that their teachers promote higher-order thinking and understanding, emphasize the importance of individual mastery and understanding, communicate high expectations for learning, honor student voices, create supportive social relations, and adapt instruction to students' needs and interests (Meece et al., 2003).

Teach Effective Life Skills

To successfully manage their lives adolescents need study skills and such other skills as self-control, conflict management, and decision making. Some high schools hold new student orientation programs prior to the start of school to help familiarize newcomers with the school building and procedures, and these types of skills can be included in such programs.

Many organizations offer workshops for parents on topics that concern adolescents. Schools can help keep parents informed of these opportunities. In school, teachers can promote the development of responsible adolescent behavior by using fewer lectures and drills and more activities that require collaborative decision making. These activities may help to alleviate common complaints of college counselors that many students come to college academically able but deficient in personal management and social skills.

CONCLUSION

Self-efficacy is a key cognitive process contributing to healthy human functioning. Factors associated with schooling, peers, and families affect self-efficacy development in adolescents. Adolescence is a challenging time and there are multiple ways that negative influences can lower students' self-efficacy. Theory and research suggest strategies that teachers and parents can use to help promote self-efficacy in adolescents. Individuals who develop a resilient sense of self-efficacy during adolescence are in a better position to withstand the normal challenges of development and are well positioned for learning into adulthood.

REFERENCES

- Alexander, K., & Entwisle, D. (1988). Achievement in the first two years of school: Patterns and processes. *Monograph for Research in Child Development*, 53(2):1-157.
- Altermatt, E. R., & Pomerantz, E. M. (2003). The development of competence-related and motivation beliefs: An investigation of similarity and influence among friends. *Journal of Educational Psychology*, 95, 111-125.
- Anderman, E. M., Maehr, M. L., & Midgley, C. (1999). Declining motivation after the transition to middle school: Schools can make a difference. *Journal of Research and Development in Education*, 32, 131-147.
- Anderman, E. M., & Midgley, C. (1997). Changes in personal achievement goals and the perceived goal structures across the transition to middle schools. *Contemporary Educational Psychology*, 22, 269-298.
- Anderman, E. M., Patrick, H., Hruda, L. Z., & Linnenbrink, E. (2002). Observing classroom goal structures to clarify and expand goal theory. In C. Midgley (Ed.), *Goals, goal structures, and patterns of adaptive learning* (pp. 243-278). Mahwah, NJ: Erlbaum.
- Anderman, E. M., & Young, A. J. (1994). Motivation and strategy use in science: Individual differences and classroom effects. *Journal of Research in Science Teaching*, 31, 811-831.

- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, *52*, 1-26.
- Baumrind, D. (1967). Current patterns of parental authority. *Genetic Psychology Monographs*, *75*, 43-88.
- Berndt, T. J., & Keefe, K. (1992). Friends' influence on adolescents' perceptions of themselves at school. In D. H. Schunk & J. L. Meece (Eds.), *Student perceptions in the classroom* (pp. 51-73). Hillsdale, NJ: Erlbaum.
- Bleeker, M. M., & Jacobs, J. E. (2004). Achievement in math and science: Do mothers' beliefs matter 12 years later? *Journal of Educational Psychology*, *96*, 97-109.
- Bong, M., & Clark, R. (1999). Comparison between self-concept and self-efficacy in academic motivation research. *Educational Psychologist*, *34*, 139-153.
- Bouffard-Bouchard, T., Parent, S., & Larivée, S. (1991). Influence of self-efficacy on self-regulation and performance among junior and senior high-school age students. *International Journal of Behavioral Development*, *14*, 153-164.
- Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology*, *52*, 371-399.
- Britner, S. L., & Pajares, F. (2001). Self-efficacy beliefs, motivation, race, and gender in middle school science. *Journal of Women and Minorities in Science and Engineering*, *7*, 271-285.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, *22*, 723-742.
- Cairns, R. B., Cairns, B. D., & Neckerman, J. J. (1989). Early school dropout: Configurations and determinants. *Child Development*, *60*, 1437-1452.
- Collins, J. L. (1982, March). *Self-efficacy and ability in achievement behavior*. Paper presented at the annual meeting of the American Educational Research Association, New York.
- Collins, W. A., Maccoby, E. E., Steinberg, L., Hetherington, E. M., & Bornstein, M. H. (2000). Contemporary research on parenting: The case for nature and nurture. *American Psychologist*, *55*, 218-232.
- Eccles, J. S., Adler, T., Futterman, R., Goff, S. B., Kaczala, C., Meece, J. L., et al. (1983). Expectations, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motivation* (pp. 75-146). San Francisco: Freeman.
- Eccles, J. S., & Midgley, C. (1989). Stage-environment fit: Developmentally appropriate classrooms for young adolescents. In C. Ames & R. Ames (Eds.), *Research on motivation in education* (Vol. 3, pp. 139-186). San Diego: Academic Press.
- Eccles, J. S., Midgley, C., & Adler, T. F. (1984). Grade-related changes in the school environment: Effects on achievement motivation. In J. Nicholls (Ed.), *Advances in motivation and achievement* (Vol. 3, pp. 283-311). Greenwich, CT: JAI Press.
- Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In N. Eisenberg (Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 1017-1095). New York: Wiley.

- Erikson, E. (1968). *Identity: Youth and crisis*. New York: Norton.
- Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review*, *13*, 1-22.
- Fredericks, J. A., & Eccles, J. S. (2002). Children's competence and value beliefs from childhood through adolescence: Growth trajectories in two male-sex-typed domains. *Developmental Psychology*, *38*, 519-533.
- Frome, P., & Eccles, J. S. (1998). Parents' influences on children's achievement-related perceptions. *Journal of Personality and Social Psychology*, *74*, 435-452.
- Graham, S. (1994). Motivation in African Americans. *Review of Educational Research*, *64*, 55-117.
- Greene, B., Miller, R., Crowson, H. M., Duke, B. L., & Akey, K. L. (2004). Predicting high school students' cognitive engagement and achievement: Contributions of classroom perceptions and motivation. *Contemporary Educational Psychology*, *29*, 462-482.
- Hamm, J. (2000). Do birds of a feather flock together? The variable bases for African American and European American adolescents' selection of similar friends. *Developmental Psychology*, *36*, 209-219.
- Harter, S. (1998). The development of self-representations. In N. Eisenberg (Ed.), *Handbook of child psychology* (Vol. 3, pp. 1017-1095). New York: Wiley.
- Harter, S. (1999). *The construction of the self: A developmental perspective*. New York: Guilford Press.
- Harter, S., Whitesall, N., & Lowalski, P. (1992). Individual differences in the effects of educational transitions on young adolescents' perceptions of competence and motivational orientation. *American Educational Research Journal*, *29*, 77-87.
- Jacobs, J. E., & Eccles, J. S. (1992). The impact of mothers' gender-role stereotypic beliefs on mothers' and children's ability perceptions. *Journal of Personality and Social Psychology*, *63*, 932-944.
- Jacobs, J. E., Lanza, S., Osgood, W., Eccles, J. S., & Wigfield, A. (2002). Changes in children's self-competence and values: Gender and domain differences across grades one through twelve. *Child Development*, *73*, 509-527.
- Kindermann, T. A. (1993). Natural peer groups as contexts for individual development: The case of children's motivation in school. *Developmental Psychology*, *29*, 970-977.
- Kindermann, T. A., McCollam, T. L., & Gibson, E., Jr. (1996). Peer networks and students' classroom engagement during childhood and adolescence. In J. Juvonen & K. R. Wentzel (Eds.), *Social motivation: Understanding children's school adjustment* (pp. 279-312). Cambridge, England: Cambridge University Press.
- Lent, R. W., Brown, S. D., & Larkin, K. C. (1986). Self-efficacy in the prediction of academic performance and perceived career options. *Journal of Counseling Psychology*, *33*, 265-269.
- Maccoby, E. E., & Martin, J. (1983). Socialization in the context of the family: Parent-child interactions. In E. M. Hetherington (Ed.), *Handbook of child psychology* (Vol. 4, pp. 1-101). New York: Wiley.
- Marsh, H. W. (1989). Age and sex effects in multiple dimensions of self-concept: Preadolescence to adulthood. *Journal of Educational Psychology*, *81*, 417-430.

- McCombs, B. (2003). Applying educational psychology knowledge base in educational reform: From research to application to policy. In W. M. Reynolds & G. E. Miller (Eds.), *Comprehensive handbook of psychology: Vol. 7. Educational psychology* (pp. 583-607). New York: Wiley.
- McLoyd, V. (1990). The impact of economic hardship on black families and children: Psychological distress, parenting, and socioeconomic development. *Child Development, 61*, 311-346.
- Meece, J. L. (1991). The classroom context and children's motivational goals. In M. L. Maehr & P. R. Pintrich (Eds.), *Advances in achievement motivation research* (Vol. 7, pp. 261-285). New York: Academic Press.
- Meece, J. L. (1994). The role of motivation in self-regulation. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications* (pp. 25-44). Hillsdale, NJ: Erlbaum.
- Meece, J. L., Herman, P., & McCombs, B. (2003). Relations of learner-centered teaching practices to adolescents' achievement goals. *International Journal of Educational Research, 39*, 457-475.
- Meece, J. L., & Jones, G. (1996). Gender differences in motivation and strategy use in science: Are girls rote learners? *Journal of Research on Science Teaching, 33*, 407-431.
- Meece, J. L., & Scantlebury, K. S. (in press). Gender and schooling. In J. Worell & C. Goodheart (Eds.), *Handbook of girls' and women's psychological health*. New York: Oxford Press.
- Meece, J. L., Wigfield, A., & Eccles, J. S. (1990). Predictors of math anxiety and its consequences for young adolescents' course enrollment intentions and performance in mathematics. *Journal of Educational Psychology, 82*, 60-70.
- Miliotis, D., Sesma, A., Jr., & Masten, A. S. (1999). Parenting as a protective process for school success in children from homeless families. *Early Education and Development, 10*, 111-133.
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology, 38*, 30-38.
- Pajares, F. (1996a). Self-efficacy beliefs in achievement settings. *Review of Educational Research, 66*, 543-578.
- Pajares, F. (1996b). Self-efficacy beliefs and mathematical problem-solving of gifted students. *Contemporary Educational Psychology, 21*, 325-344.
- Pajares, F. (1997). Current directions in self-efficacy research. In M. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 10, pp. 1-49). Greenwich, CT: JAI Press.
- Pajares, F., & Graham, L. (1999). Self-efficacy, motivation constructs, and mathematics performance of entering middle school students. *Contemporary Educational Psychology, 24*, 124-139.
- Pajares, F., & Johnson, M. J. (1996). Self-efficacy beliefs in the writing of high school students: A path analysis. *Psychology in the Schools, 33*, 163-175.
- Pajares, F., & Kranzler, J. (1995). Self-efficacy beliefs and general mental ability in mathematical problem-solving. *Contemporary Educational Psychology, 20*, 426-443.

- Pajares, F., & Valiante, G. (1999). Grade level and gender differences in the writing self-beliefs of middle school students. *Contemporary Educational Psychology*, *24*, 390-405.
- Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, *82*, 33-40.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.
- Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology*, *88*, 408-422.
- Ryan, A. (2000). Peer groups as a context for the socialization of adolescents' motivation, engagement, and achievement in school. *Educational Psychologist*, *35*, 101-111.
- Ryan, A. (2001). The peer group as a context for the development of young adolescent motivation and achievement. *Child Development*, *72*, 1135-1150.
- Ryan, A., & Patrick, H. (2001). The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal*, *38*, 437-460.
- Schunk, D. H. (1995). Self-efficacy and education and instruction. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and applications* (pp. 281-303). New York: Plenum.
- Schunk, D. H. (1996). Goal and self-evaluative influences during children's cognitive skill learning. *American Educational Research Journal*, *33*, 359-382.
- Schunk, D. H., & Ertmer, P. A. (1999). Self-regulatory processes during computer skill acquisition: Goal and self-evaluative influences. *Journal of Educational Psychology*, *91*, 251-260.
- Schunk, D. H., & Lilly, M. W. (1984). Sex differences in self-efficacy and attributions: Influence of performance feedback. *Journal of Early Adolescence*, *4*, 203-213.
- Schunk, D. H., & Miller, S. D. (2002). Self-efficacy and adolescents' motivation. In F. Pajares & T. Urdan (Eds.), *Academic motivation of adolescents* (pp. 29-52). Greenwich, CT: Information Age.
- Schunk, D. H., & Pajares, F. (2002). The development of academic self-efficacy. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 15-31). San Diego: Academic Press.
- Schunk, D. H., & Pajares, F. (2004). Self-efficacy in education revisited: Empirical and applied evidence. In D. M. McInerney & S. Van Etten (Eds.), *Big theories revisited* (pp. 115-138). Greenwich, CT: Information Age.
- Shell, D. F., Colvin, C., & Bruning, R. H. (1995). Self-efficacy, attributions, and outcome expectancy mechanisms in reading and writing achievement: Grade-level and achievement-level differences. *Journal of Educational Psychology*, *87*, 386-398.
- Sherman, A. (1997). *Poverty matters: The cost of child poverty in America*. Washington, DC: Children's Defense Fund.

- Smith, L., Sinclair, K. E., & Chapman, E. S. (2002). Students' goals, self-efficacy, self-handicapping, and negative affective responses: An Australian senior school student study. *Contemporary Educational Psychology, 27*, 471-485.
- Steinberg, L. (2001). We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*, 1-19.
- Steinberg, L., Brown, B. B., & Dornbusch, S. M. (1996). *Beyond the classroom: Why school reform has failed and what parents need to do*. New York: Simon & Schuster.
- Stright, A. D., Neitzel, C., Sears, K. G., & Hoke-Sinex, L. (2001). Instruction begins in the home: Relations between parental instruction and children's self-regulation in the classroom. *Journal of Educational Psychology, 93*, 456-466.
- Urduan, T., & Midgley, C. (2003). Changes in the perceived classroom goal structure and pattern of adaptive learning during early adolescence. *Contemporary Educational Psychology, 28*, 524-551.
- Urduan, T., Midgley, C., & Anderman, E. M. (1998). The role of the classroom goal structure in students' use of self-handicapping strategies. *American Educational Research Journal, 35*, 101-122.
- Valentine, J. C., DuBois, D. L., & Cooper, H. (2004). The relation between self-beliefs and academic achievement: A meta-analytic review. *Educational Psychologist, 39*, 111-134.
- Waterman, A. (1999). Identity, the identity statuses, and identity status development: A contemporary statement. *Developmental Psychology, 19*, 591-621.
- Wentzel, K. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology, 89*, 411-419.
- Wentzel, K. (2002). Are effective teachers like good parents? Teaching styles and student adjustment in early adolescence. *Child Development, 73*, 287-301.
- Wentzel, K., Barry, C. B., & Caldwell, K. A. (2004). Friendships in middle school: Influences on motivation and school adjustment. *Journal of Educational Psychology, 96*, 195-203.
- Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Developmental Review, 12*, 265-310.
- Wigfield, A., Eccles, J. S., Mac Iver, D., Reuman, D., & Midgley, C. (1991). Transitions at early adolescence: Changes in children's domain-specific self-perceptions and general self-esteem across the transition to junior high school. *Developmental Psychology, 27*, 552-565.
- Wigfield, A., Eccles, J. S., Yoon, K. S., Harold, R. D., Arbreton, A. J. A., Freedman-Doan, C., et al. (1997). Change in children's competence beliefs and subjective task values across the elementary school years: A 3-year study. *Journal of Educational Psychology, 89*, 451-469.
- Yee, D. K., & Eccles, J. S. (1988). Parental perceptions and attributions for children's math achievement. *Sex Roles, 19*, 317-333.
- Zimmerman, B. J., & Bandura, A. (1994). Impact of self-regulatory influences on writing course achievement. *American Educational Research Journal, 31*, 845-862.
- Zimmerman, B. J., & Kitsantas, A. (1996). Self-regulated learning of a motoric skill: The role of goal setting and self-monitoring. *Journal of Applied Sport Psychology, 8*, 60-75.

- Zimmerman, B. J., & Kitsantas, A. (1997). Developmental phases in self-regulation: Shifting from process goals to outcome goals. *Journal of Educational Psychology, 89*, 29-36.
- Zimmerman, B. J., & Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology, 82*, 51-59.