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tivation to Succeed

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Latin root of *motivation* means "to move" and fundamentally, motivational psychologists study what moves people to act and why people think and do what they do (Weiner, 1992). In keeping with this broad view of motivation, we focus on individuals' choices about which tasks to pursue, the persistence with which they pursue these tasks, the intensity of their engagement in these tasks, and their thoughts about their performance and their goals (see also Eccles-Parsons et al., 1983; Wigfield & Eccles, 1992). The work reviewed here addresses the following types of questions: Why do people have different goals? Why do some people invest time and energy in developing their academic skills, while others, with similar levels of intellectual ability, focus on other skills such as sports, or no particular skills at all? Why do some continue to persist even when they are struggling, while others quit at the first sign of difficulty? In addition, since most of the relevant developmental work has focused on achievement motivation—the motive related to performance on tasks involving standards of excellence—we focus on this particular aspect of motivation. We begin with a brief historical review of the early developmentally focused theories and empirical work and then discuss more extensively the current theoretical perspectives and empirical work on developmental changes in, socialization of, and contextual influences on motivation.

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A BRIEF HISTORY OF THE FIELD

The early motivational theorists, reflecting the "grand theory" tradition in psychology, attempted to explain motivation in many different settings and for many kinds of behaviors (Weiner 1990). Over time, theories of motivation have become more specific, focused, and cognitive. In this section, we review the most influential of the early grand theories of motivation (psychoanalytic theory, field theory, behavioral/drive theory), as well as more specific theories (social learning theory, interest theories, competence/effectance motivation theory, and expectancy-value theory (see Heckhausen, 1991; Pintrich & Schunk, 1996; Weiner, 1992, for more details). We then relate this work to the early developmental research.

Early Grand Theories of Motivation

Psychoanalytic Theory

Freud (1934), in one of the first grand theories of motivation, proposed that *instincts* (conceptualized as bodily needs that get represented cognitively as wishes or desires) are the major force behind energized behavior and that the primary source of these instincts is the id or the unconscious part of the mind. According to Freud, an instinct, or need, arises from the id, creating tension. To release this tension, individuals engage in behaviors that will reinstate a balanced, homeostatic condition. If the object needed to fulfill the instinctual drive is absent, then the ego must plan an alternative strategy. If this new strategy is successful, then homeostasis is achieved. The ego also gets involved if the id seeks to satisfy the need in socially unacceptable ways; under these circumstances the ego (the conscious mind) must either suppress the need or find another more appropriate outlet, often leading to a conflict between the ego and id. If the ego's solutions do not satisfactorily fulfill the id's needs, then problems (such as neuroses) can develop.

In general, Freud's ideas about motivation are not central to current developmental theorists' views on the nature of motivation, in part because they are so difficult to test, and in part because both the notion that people are closed energy systems and that instincts are the primary source of motivation have been questioned. Freud's most lasting contribution to the field of motivation is likely to be his emphasis on unconscious motivation. Until quite recently, most contemporary models focused on the more conscious aspects of motivation.

Lewin's Field Theory

Lewin's (1938) field theory was based on such Gestaltist notions as the importance of considering the whole rather than just the parts of things, and the tendency of people to organize and interpret their experiences. Lewin postulated that behavior is determined by both the person and the environment, $[B = f(P,E)]$, and introduced the idea of *life space* to describe the person's psychological reality. This life space contains the person and his or her perception of the environment, organized into different regions. He posited that motivation results because the regions associated with particular needs or goals (e.g., school achievement) are in tension until these goals are achieved. Lewin also hypothesized that properties of the goal object such as valence, or relative attractiveness, influence the level of tension: The higher the valence the more likely the individual is to pursue the object (particularly if needs and goal also are strong). Lewin, Dembo, Festinger, and Sears (1944) defined *level of aspiration* as the kind of performance the individual plans to undertake. They argued that level of aspiration is influenced by the valence of the activity undertaken, as well as the individual's sense of *potency* about their ability to accomplish the activity. Although Lewin's notion of the life space no longer receives much attention, his view that behavior is a function of both the person and the environment, and his notions of valence and potency are central to most current expectancy-based motivation theories, such as expectancy-value theory and self-efficacy theory.

Behavioral Theory

In classic behavioral theory (e.g., Hull, 1943), motivation was conceived in terms of *drives*. Hull included both primary drives coming from deprivation of basic biological needs (such as hunger, thirst, sex, need for air, and need for rest) and learned secondary drives (such as fear, different incentives to perform an action, and anxiety). These drives motivated behavior designed to satisfy the need. Exactly which behavior was determined by habit strength. According to Thorndike's (1931) law of effect, the habit strength

y given behavior depends on the history of that behav-
eading to positive results (i.e., satisfying the need).
hypothesized that behavior is a joint function of drives
habits [Behavior = Drive times Habit ($B = D \times H$)].
drive provides the energy for the behavior, and the be-
r that the organism engages in is the one most readily
able in the organism's repertoire of habits. The inclu-
f learned secondary drives is most relevant to current
ies.

her behavioral theorists, building on Thorndike's
) law of effect, explored how consequences affect or-
ms' tendencies to engage in different behaviors. For
ple, B.F. Skinner (1974) studied how different kinds
ates of reinforcements affect behaviors. Reinforce-
principles derived from this work have been applied
sively in educational settings (see Kazdin, 1982) lead-
prolific use of positive reinforcements (e.g., praise,
and token economies) to foster students' motivation
gage in school tasks and of negative strategies such as
out to extinguish undesirable behaviors.

ke Freud, Hull emphasized the satisfaction of needs as
ain motivators of behavior. Unlike Freud, however,
Skinner, and other behaviorally oriented theorists
Bijou & Baer, 1961; Gewirtz, 1969) did not include
tive mechanisms in their theories. Instead, behavior
assumed to be controlled by its consequences with
ve consequences leading to increases, and negative
quences leading to decreases, in the behavior. In con-
modern motivational theorists stress internal cog-
representations and processes. According to these
ists, consequences of one's behavior influence one's
ation primarily through individuals' *interpretations*
se consequences.

Specific Motivational Theories

r's Social Learning Theory

s theory of motivation, Rotter (1966) extended the
ng theorists' approach to include mental represen-
(called expectations) of the likely reinforcement
mes. He also added the construct of value and hypothe-
that motivated behavior choice is a function of reward
tancies and the value of that reinforcement to the indi-
l. He believed that specific reward expectations form
result of experiences with similar tasks. Rotter also
d that individuals develop generalized expectancies
on previous performance across varied tasks and that
generalized expectancies have a particularly strong
influence in novel situations. Both his pairing of expectation and value and his stress on mental representations of experience and events have been incorporated into most contemporary expectancy/value and social construction theories of motivation (e.g., Atkinson, 1964, 1966; Eccles-Parsons et al., 1983; Raynor, 1982).

Rotter also introduced the construct of locus of control, which he conceptualized as a stable individual difference in the tendency to see events as under personal control (internal locus of control) or environmental control (external locus of control; see Findley & Cooper, 1983). This construct has been incorporated into many current theories, including Weiner's (1985) attribution theory, Bandura's personal efficacy theory, and Connell and E. Skinner's developmentally-oriented motivational theories (e.g., Connell, 1985; E. Skinner, 1985, 1995). It is also central to Dweck and Elliott's (1983) discussion of the nature of children's ability beliefs in that the belief that ability is incremental means that one's ability is under one's own control, whereas the belief that ability is an entity implies that one's ability is determined by uncontrollable factors such as one's genetic makeup.

Interest Theories

Before academic psychology became an independent scientific discipline, educational theorists and philosophers were concerned with motivational issues in learning and education. Many of these theories, however, referred to interest rather than motivation. For example, Herbart (1841/1965) argued that education should foster unspecialized, multifaceted interests because it would facilitate learning. Herbart hypothesized that interest facilitates meaningful learning, correct and complete understanding of facts or domains of knowledge, long-term storage of knowledge, and the desire for further learning. These ideas, in turn, influenced Dewey's (1913) emphasis on interest and enjoyment as central motivational forces in education. Dewey stressed that people will identify with, and be totally absorbed by, the material to be learned only if they are sufficiently interested in it. In contrast, learning activities that are controlled by external forces will result in only superficial understanding. These ideas have been incorporated into many contemporary theories (e.g., Graham & Golan, 1991; Lepper, 1988; Ryan, Connell, & Deci, 1985).

For many years, these early conceptions of interest (see also Rubinstein, 1958) were supplanted by behaviorist theories and drive concepts of motivation (cf. Berlyne, 1949, 1967) except in the area of vocational psychology.

Vocational psychology researchers, like Kerschensteiner (1922), continued to stress the centrality of interests in determining occupational choice. Systematic educationally relevant research on interest was not resumed until the 1980s (e.g., Renninger, Hidi, & Krapp, 1992).

White's Notion of Competence Motivation

In 1959, Robert White argued that neither drive nor instinct-based motivational theories could explain animals' persistent attempts to master their environments, particularly if homeostasis was assumed to be the preferred state. He pointed out abundant evidence that exploratory behaviors occur even when basic bodily needs are fully sated. White argued for a new motivational construct *(effectance motivation)* to explain behaviors such as exploration, mastery, and manipulation. The goals of effectance motivation are acquiring competence and influencing one's environment. White also postulated that the behaviors stimulated by effectance motivation are critical for successful adaptation to one's environments, and for the development of self-determination and autonomy. Finally, he introduced cognitive constructs such as goals and planning into the motivational literature. White's ideas had a tremendous impact on subsequent theorizing about motivation by developmental psychologists, particularly Harter, Deci, Ryan, Connell, E. Skinner, and Wellborn.

Atkinson's Expectancy-Value Theory of Achievement Motivation

Atkinson (1964, 1966) developed the first formal model of motivation designed to explain achievement-related behaviors such as striving for success, choice among achievement tasks, and persistence. Atkinson was influenced by several ideas including Murray's (1938) suggestion that the need for achievement is a basic human need, Lewin's (1938) ideas regarding activity valence and importance, Tolman's (1932) construct of expectancies for success, and Edwards' (1954) work on maximizing expected utility. Atkinson (1964) hypothesized that achievement behaviors are determined by achievement motives, expectancies for success, and incentive values. He posited that two achievement motives (M_{as}—the relatively stable disposition to strive for success; and M_{af}—the disposition to avoid failure) are aroused when cues indicate that performance will be evaluated against a rigorous standard of excellence. He measured the motive for success using Murray's Thematic Apperception Test (TAT), in which people tell stories about a series of somewhat ambiguous pictures of individuals engaging (or not engaging) in different activities. The stories are scored for their achievement imagery, which Atkinson assumed reflected unconscious achievement motivation (see also McClelland, 1985). The motive to avoid failure is usually measured with test anxiety scales.

Atkinson defined expectancies for success in terms of the expected probabilities for success (P_s) and failure (P_f) on specific tasks and assumed that $P_s + P_f = 1$. He defined incentive value as the relative attractiveness of succeeding on a given achievement task—with I_s being the incentive for success and I_f being the incentive to avoid failure. He then expressed the relations among these constructs algebraically to define the resultant motive to achieve (M_{ach}):

$$M_{ach} = (M_{as} \times P_s \times I_s) - (M_{af} \times P_f \times I_f)$$

Though he included incentive value as a separate term, he also assumed that it was equal to $1 - P_s$ and then, through algebraic manipulation of the terms, he eliminated I_s as a central construct. Thus, P_s became the primary cognitive component of the model, leading to a large body of the work assessing individuals' achievement strivings under different probabilities for success (see Atkinson, 1966).

This equation yields the hypotheses that individuals with relatively stronger motives to approach success than avoid failure will have positive resultant M_{ach}, will be most likely to approach achievement tasks, and will be most highly motivated on tasks of intermediate difficulty (e.g., $P_s = .50$). In contrast, individuals with relatively stronger motives to avoid failure than to approach success will seek to avoid achievement tasks, especially those of intermediate risk (when M_{af} will be at its maximum) and should prefer either very easy or very difficult tasks (when M_{af} is at its minimum). These two sets of propositions have received extensive empirical support with different-aged subjects, mostly using laboratory gamelike tasks (see Atkinson, 1966, for review). However, they are not always supported, particularly in more real-world achievement situations with important tasks. Further, equating incentive value as the inverse of the probability of success greatly limited research on, and theorizing about, task value (see Parsons & Goff, 1980; Wigfield & Eccles, 1992).

Atkinson's expectancy-value model was the first comprehensive, mathematical expectancy-value model of achievement motivation; it dominated the field for many years. This expectancy-value tradition has influenced the efforts of Weiner (see 1992), Feather (e.g., 1982a, 1982b, 1988), Raynor (1982), Eccles and her colleagues (e.g., Eccles-Parsons et al., 1983; Pekrun, 1993; Wigfield, 1994; Wigfield & Eccles, 1992), and Pintrich and his colleagues

(Pintrich & De Groot, 1990; Pintrich & Schrauben, 1992) to expand Atkinson's theory into more comprehensive and educationally relevant models.

Early Developmental Research

Expectancies and Values

The most important early work on children's motivation was done by Virginia Crandall and her colleagues Vaughn Crandall and Esther Battle (e.g., Battle, 1965, 1966; Crandall, 1969). Following Atkinson (1964) and Rotter (1966), these researchers investigated how children's expectancies for success and task attainment value (i.e., importance to the individual) affected achievement. Both Crandall and Battle demonstrated that children's and adolescents' expectancies relate to their choice of, persistence at, and performance on, achievement tasks. Persistence was related to high attainment value. Performance, however, was more strongly related to expectancies for success than to attainment value. In addition, in contrast to Atkinson's assumption that expectancies and values are inversely related, expectancies for success and attainment value were positively related.

The Crandalls also pioneered developmental work on locus of control. Crandall, Katkovsky, and Crandall (1965) developed the first children's measure of personal responsibility (or control) for positive and negative achievement outcomes—the Intellectual Achievement Responsibility Scale. This measure was adapted by Dweck and her colleagues to measure academic learned helplessness.

Early Research on Interest

Among the earliest writings on the development of interest are those of Nagy (1912), Carter (1940), and Piaget (1948). Nagy proposed five stages of interest development: sensory (years 1–2), subjective (years 3–7), objective (years 7–10), persisting (years 11–15), and logical interest (years 15 and beyond). During the stage of *sensory interest*, young children focus their attention on lively, stimulating perceptions (especially visual and acoustical perceptions). As interest in sensory events diminishes, the objects themselves become a source of interest. In this stage of *subjective interest*, objects gain interest value because they are instrumental to some preferred activity (e.g., trees become interesting because they can be climbed). These subjective interests are unstable and can change rapidly. In the stage of *objective interest*, children focus on understanding how things work and on analyzing and categorizing their perceptions. As these interests become increasingly associated with self-concepts, children move into the stage of *persisting interests*. More than at earlier stages, interests begin to vary systematically across individuals. Finally, in the stage of *logical interest*, interests become independent of specific activities and more strongly related to abstract categories or domains of knowledge, such as aesthetic, religious, or scientific interest. Carter extended this approach to a theory of the development of vocational interests and aspirations.

Early Research on Children's Test Anxiety

Anxiety was an important early topic because Atkinson (1964) conceptualized (and often measured) the motive to avoid failure in terms of test anxiety, and because anxiety was considered one of the important secondary drives in the learning theories of Hull and Spence. Much of this work focused on either test anxiety, or anxiety about other performance evaluations (see Dusek, 1980; Wigfield & Eccles, 1989). Sarason, Davidson, Lighthall, Waite, and Ruebush (1960) developed the Test Anxiety Scale for Children (for critique, see Nicholls, 1976). Using this measure, Hill and Sarason (1966) found that anxiety both increases across the school years and becomes more negatively related to subsequent grades and test scores. They also found that highly anxious children's achievement test scores are up to two years behind those of their low anxious peers and that girls' anxiety scores are higher than boys' scores.

Subsequent researchers made two important conceptual distinctions: First, Spielberger (1966) distinguished trait and state anxiety, with trait anxiety defined as a stable, cross-situational individual characteristic and state anxiety being more task specific and time bound. He developed the scales still used to measure each component. Second, Liebert and Morris (1967) distinguished between worry and emotionality, with worry being the cognitive aspects of anxiety (consisting of self-deprecating and task-irrelevant thoughts) and emotionality being the physiological component of anxiety. Most recent research on anxiety has focused on the worry aspect of anxiety.

CURRENT THEORETICAL PERSPECTIVES ON MOTIVATION

Current theories of motivation do not focus on constructs such as drives or instincts, although some include psychological "needs" (e.g., Connell & Wellborn, 1991; Deci & Ryan, 1985; Ryan, 1992). Few current achievement motivation theories deal explicitly with unconscious aspects of

motivation (for exception, see McClelland, 1985). Instead, most of these theories focus on beliefs and cognitions, emphasizing psychological and interpretational processes instead of drives and emotional states. Cognitions like attributions for success and failure, self-efficacy beliefs, control beliefs, self-regulatory beliefs, and goals have received the most attention. Some current theories (e.g., attribution theory) incorporate affect; others highlight broad definitions of what it means to value achievement (e.g., modern expectancy value theory). Finally, current theorists are increasingly sensitive to context influences.

To organize our presentation, we group the current theories according to three broad motivational questions: Can I do this task? Do I want to do this task and why? and What do I have to do to succeed on this task (see Eccles & Wigfield, 1985)? Many contemporary theories deal primarily with a construct or constructs within one of these broad domains. However, some theories include constructs aimed at more than one of these questions, and we note this in our discussion.

Theories Concerned with the Question "Can I Do This Task?"

Several theories focus on individuals' beliefs about their competence and efficacy, their expectancies for success or failure, and their sense of control over outcomes, which are beliefs directly related to the question "Can I do this task?" In general, when children answer this question affirmatively, they perform better and select more challenging tasks.

Attribution Theory

Attribution theory grew out of Heider's (1958) work on people's understandings and explanations of different outcomes. Weiner's attribution theory has dominated the field of achievement motivation for most of the past 25 years (see Graham, 1991; Weiner, 1985). A student of Atkinson, Weiner based his approach in the expectancy-value tradition. However, he emphasized how *interpretations* of one's achievement outcomes (causal attribution), rather than motivational dispositions or actual outcomes, determine subsequent achievement strivings. Weiner et al. (1971) initially identified ability, effort, task difficulty, and luck as the most important achievement causal attributions. They classified these attributions into two dimensions: locus of control and stability. The locus of control dimension, derived from Rotter's work, has two poles: internal versus external locus of control. The stability dimension captures whether causes change over time or not. For example, ability was classified as a stable, internal cause, and effort was classified as unstable, internal. Later, Weiner (1985) added a third dimension, controllability, to distinguish causes one can control, such as skill/efficacy, from causes one can't control, such as aptitude, mood, others' actions, and luck.

Weiner and his colleagues (e.g., Weiner, 1985; Weiner et al., 1971) proposed and demonstrated that each of these causal dimensions has unique influences on various aspects of achievement behavior. The stability dimension was hypothesized to influence individuals' expectancies for success because attributing an outcome to a stable cause such as ability should have a stronger influence on expectancies for future success than attributing an outcome to an unstable cause such as effort (see Weiner, 1985). This perspective contrasts with Rotter's (1966) contention that locus of control influences expectancies. Weiner argued that Rotter confounded the locus of control and stability dimensions in his theory, and so did not accurately identify the determinants of expectancy change. Further, like Atkinson (1966) and later Bandura (see 1986) and Eccles-Parsons et al. (1983), Weiner argued that expectations for success influence the individual's choice of subsequent achievement tasks.

Weiner (1985) proposed that the locus of control dimension was linked most strongly to affective reactions. He argued that, although individuals' first emotional responses to an outcome are based largely on their evaluation of whether the outcome is positive or negative, the next more distinct emotional reactions are based on whether the outcome is attributed to an internal or external cause: Attributing success to internal causes should enhance pride or self-esteem; attributing it to external causes should enhance gratitude; attributing failure to internal causes should produce shame; attributing it to external causes should induce anger. These are the emotional reactions that influence behavior in subsequent achievement situations (Weiner, Russell, & Lerman, 1979).

Finally, Weiner and his colleagues stressed the relation of the controllability dimension to help-giving. Individuals are more likely to help others if they failed due to factors they could not control (I didn't do my homework because my house burned down) than if they failed for controllable reasons (I didn't do my homework because I went to the movies instead).

In summary, attributions are important because they influence subsequent achievement strivings in both positive and negative ways: Individuals who attribute success to ability and effort, will have positive affect, and will expect

ell on similar tasks in the future because they think
ve control over these outcomes. In contrast, individ-
o attribute failure to lack of ability will feel shame-
l will lower their future expectancies because they
ey have little control over subsequent outcomes.
umber of important developmental issues relate to
ory. First, the process of making attributions is rel-
complex. One must understand the covariance of
and effect, discount other possible causes, under-
ie distinctiveness and consistency of an event, and
ine whether a cause is necessary, sufficient, or
make accurate attributions (Kelly, 1972). These
es impose cognitive demands that are difficult for
hildren. Second, children (especially young chil-
o not always distinguish clearly between different
limensions; in addition, their understanding of each
on changes over time. Young children see ability
ort as complementary and do not fully distinguish
the two constructs; the smart person is one who
rdest, and ability can be improved through effort
ls, 1978). By age 11 or 12, children also come to
and the reciprocal, compensatory relations between
nd ability: People with less ability need to try
o reach the same level of success as people with
ility. They also come to understand that trying
nay be a sign that one is less able. Children's under-
of task difficulty also changes with age (Nicholls
r, 1984). These developmental shifts mean that the
tinctions between causal categories in Weiner's
annot be applied to children of different ages. Fur-
actor analytic study of junior high school students'
ions of their own successes and failure showed lit-
ort for the attributional dimensions of locus of
stability, and controllability (Vispoel & Austin,
nstead, internal attributions factored separately
erent achievement domains, and the external attri-
factored together across domains. These results de-
rther exploration.
has also been general criticism of the "person
ist" metaphor used so extensively in attribution
As researchers understand better the limits of indi-
rational decision-making power (e.g., Fischoff,
& Shapira, 1982; Kahneman & Tversky, 1984),
n of people as logical, rational information seek-
been questioned. Motivation likely means more
derstanding outcomes, reacting to them emotion-
dicting the future, and executing the next behavior.
as Nicholls (1992) suggested, attribution theory is
theory in a more complex postmodern age.

Self-Efficacy Theory

Bandura's (1994) social-cognitive model emphasizes human agency and perceptions of efficacy (defined as individuals' confidence in their ability to organize and execute a given course of action to solve a problem or accomplish a task) in determining individuals' achievement strivings. Bandura (1994) characterizes self-efficacy as a multidimensional construct that can vary in strength (i.e., positive or negative), generality (relating to many situations or only a few), and level of difficulty (feeling efficacious for all tasks or only easy tasks).

Like expectancy-value theory and attribution theory, Bandura's theory stresses expectancies for success. However, Bandura distinguished between two kinds of expectancy beliefs: outcome expectations (beliefs that certain behaviors, like practice, will lead to certain outcomes, like improved performance) versus efficacy expectations (beliefs about whether one can perform the behaviors necessary to produce the outcome, e.g., I can practice sufficiently hard to win the next tennis match). Individuals can believe that a certain behavior will produce a certain outcome (outcome expectation) but may not believe they can do that behavior (efficacy expectation). Bandura proposed that individuals' efficacy expectations are the major determinant of goal setting, activity choice, willingness to expend effort, and persistence (see Bandura, 1994).

Bandura proposed that individuals' perceived self-efficacy is determined by four things: previous performance (succeeding leads to a stronger sense of personal efficacy); vicarious learning (watching models succeed or fail on tasks); verbal encouragement by others, and one's physiological reactions (overarousal and anxiety/worry leading to a lower sense of personal efficacy). His stress on these four determinants reflects the link of this theory with both behaviorist and social learning traditions. In addition, Bandura acknowledged the influence of causal attributions on people's self-efficacy. However, Bandura argued that causal attributions only influence behavior through their impact on efficacy beliefs.

The self-efficacy construct has been applied to behavior in many domains including school, health, sports, therapy, and even snake phobia (see Bandura, 1994). By and large, the evidence is supportive of his theoretical predictions. For example, high personal academic expectations predict subsequent performance, course enrollment, and occupational choice (see Bandura, 1994; Pajares & Miller, 1994; Schunk, 1991; Zimmerman, Bandura, & Martinez-Pons, 1992). Additionally, perceived efficacy, particularly

personal efficacy regarding academic work, is an important predictor of academic achievement among African American adolescents, particularly males (e.g., Gurin & Epps, 1974; Hale-Benson, 1989).

In summary, Bandura (1994) argued that his self-efficacy construct is superior to most other self-related constructs in the motivation field, (including locus of control, effectance motivation, control beliefs, perceived competence beliefs, and possible selves) because it is more task and situation specific and therefore should relate more strongly to behavior. However, the distinctions among these constructs is less clear than Bandura proposed. Furthermore, like attribution theory, social cognitive theory can be criticized for its overly rational and information-processing approach to motivation. Finally, it is not clear how distinct self-efficacy is from past performance. Bandura argued that self-efficacy mediates the link between past performance and subsequent performance and task choice. Whether this is true is still a controversial issue.

Self-Worth Theory

Covington (1992) defined the motive for self-worth as the desire to establish and maintain a positive self-image, or sense of self-worth. Because children spend so much time and experience so much evaluation in classrooms, Covington argued that protecting one's sense of academic competence is likely to be critical for maintaining a positive sense of self-worth. One way to protect one's sense of academic confidence is by adopting causal attribution patterns that enhance both the sense of academic competence and control. Attributing success to ability and effort and failure to not trying is one common protective pattern (Covington & Omelich, 1979; Eccles-Parsons, Meece, Adler, & Kaczala, 1982). Attributing failure to lack of ability is a particularly problematic attribution that many students seek to avoid.

However, school evaluation, competition, and social comparison can make it difficult for some children to maintain the belief that they are competent academically. Covington (1992) outlined various strategies children develop to avoid appearing to lack ability, including procrastination, making excuses, avoiding challenging tasks, and not trying. The last two strategies are particularly interesting. Covington and Omelich (1979) referred to effort as a "double-edged sword" because, although trying is important for success (and is encouraged by both teachers and parents), if children try and fail, it is difficult to escape the conclusion that they lack ability. Therefore, if failure seems likely, some children will not try, precisely because trying and failing threatens their ability self-concepts. Avoiding challenging tasks is another good way to avoid or minimize failure experiences; this strategy is often used by high-achieving students who are failure avoidant: Rather than being motivated by challenging tasks, such students try to avoid difficult tasks altogether to maintain both their own sense of competence, and others' perceptions of their competence.

Covington (1992) suggested that reducing the frequency and salience of competitive, social comparative, and evaluative practices, and focusing instead on effort, mastery, and improvement, would allow more children to maintain their self-worth without having to resort to such failure-avoiding strategies. These suggestions have been incorporated into many researchers' recommendations for school reform (e.g., Ames, 1992; Maehr & Midgley, 1996).

Because Covington focuses on the inverse relation of ability and effort and emphasizes the importance of the interpretation of achievement outcomes for self-perception, his views are complementary with those of attribution theory and self-efficacy theory (see Graham, 1991). However, recent work in the self-concept area has raised questions about Covington's contention that academic competence beliefs are particularly strong determinants of self-worth. Harter (1990) has shown that self-concepts regarding physical appearance and social competence are stronger predictors of self-worth than academic self-concepts (see Harter, Ch. 9, this Volume). In addition, several investigations suggest that the power of any particular self-concept to influence an individual's self-worth depends on the value this individual attaches to this competence domain, and that people can reduce the value they attach to various tasks in order to maintain their sense of self-worth (e.g., Eccles, 1993; Eccles, Wigfield, & Blumenfeld, 1984; Harter, 1990; Harter, Ch. 9, this Volume; James, 1892/1963). It is likely, however, that lowering the value one attaches to school achievement in response to school failure as a way to maintain self-worth will lead to reduced effort as predicted by Covington.

Modern Expectancy-Value Theory

Modern expectancy-value theories (e.g., Eccles, 1987, 1993; Eccles-Parsons et al., 1983; Feather, 1982a, 1982b; Wigfield, 1994; Wigfield & Eccles, 1992) are based on Lewin's and Atkinson's suggestions that achievement performance, persistence, and choice are most directly linked to individuals' expectancy-related and task value beliefs. However,

they differ from Atkinson's (1964) expectancy-value theory in several ways: First, the expectancy and value components are both more elaborated, and more closely linked to psychological and social/cultural determinants. Second, they are grounded in more real-world achievement tasks than those tasks used to test Atkinson's theory. Third, expectancies and values are assumed to be positively related to each other.

The Eccles et al. Expectancy-Value Model. Eccles-Parsons and her colleagues have elaborated one expectancy-value model of achievement-related choices. (e.g., Eccles, 1987; Eccles, Adler, & Meece, 1984; Eccles & Wigfield, 1995; Eccles-Parsons et al., 1983; Meece, Eccles-Parsons, Kaczala, Goff, & Futterman, 1982; Meece, Wigfield, & Eccles, 1990; Parsons & Goff, 1980). Eccles and her colleagues derive the expectancy and value constructs from the work of Lewin (1938), Tolman (1932), and Atkinson (1966). In addition, however, Eccles and her colleagues also emphasize the social psychological influences on choice and persistence. Choices are assumed to be influenced by both negative and positive task characteristics, and all choices are assumed to have costs associated with them precisely because one choice often eliminates other options. Consequently, the *relative* value and probability of success of various options are key influences on choice, particularly for achievement-related choices related to which courses to take, what careers to seek, and what avocational/recreational activities to pursue.

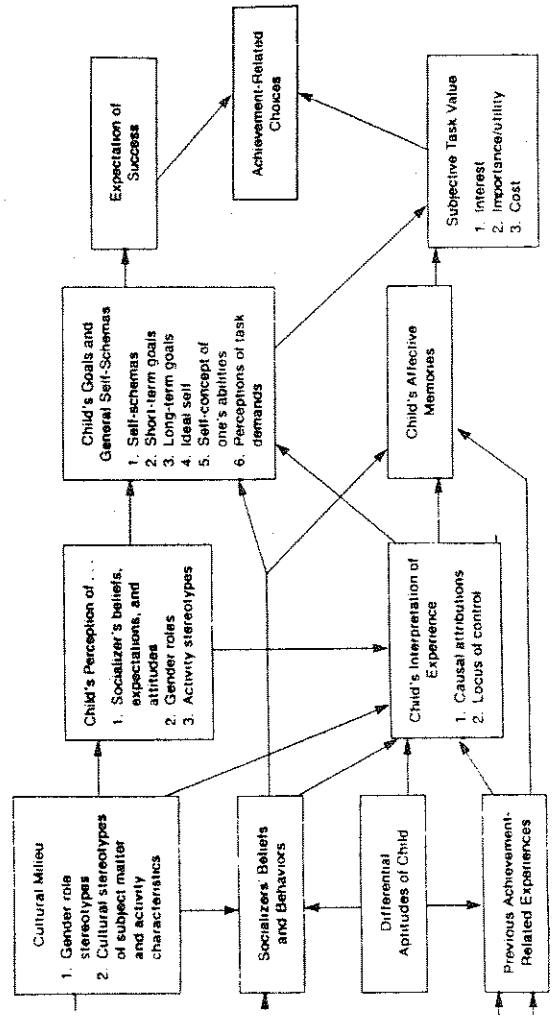
The most recent version of this model is depicted in Figure 15.1. Expectancies and values are assumed to directly influence performance, persistence, and task choice. Expectancies and values are assumed to be influenced by task-specific beliefs such as perceptions of competence, perceptions of the difficulty of different tasks, and individuals' goals and self-schemas. These social cognitive variables, in turn, are influenced by individuals' perceptions of other peoples' attitudes and expectations for them, and by their own interpretations of their previous achievement outcomes. Individuals' task-perceptions and interpretations of their past outcomes are assumed to be influenced by socializers' behaviors and beliefs and by the cultural milieu and unique historical events.

Eccles-Parsons et al. (1983) defined expectancies for success as children's beliefs about how well they will do on upcoming tasks, either in the immediate or long-term future. These expectancy beliefs are measured in a manner analogous to measures of Bandura's (1986) personal efficacy expectations; Thus, in contrast to Bandura's claim that expectancy-value theories focus on outcome expectations, the focus in this model is on personal or efficacy expectations.

Eccles-Parsons et al. (1983) defined beliefs about ability as children's evaluations of their competence in different areas; this definition is similar to those of researchers such as Covington, Harter (e.g., Harter, 1982, 1990), and Marsh and his colleagues (e.g., Marsh, 1990a; Marsh & Shavelson, 1985). Thus, ability beliefs are conceived as integrated beliefs about competence in a given domain, in contrast to one's expectancies for success on a specific upcoming task. However, their empirical work has shown that children and adolescents do not distinguish between these two levels of beliefs (e.g., Eccles & Wigfield, 1995). Apparently, even though these constructs can be theoretically distinguished from each other, in real-world achievement situations they are highly related and empirically indistinguishable.

Heckhausen's Expectancy-Value Model. In his general expectancy-value model, Heckhausen (1977) integrated a number of different approaches to motivation. In the resulting model, he distinguished among four different types of expectancies: situation-outcome expectancies (i.e., subjective probability of attaining an outcome in a specific situation without acting), action-outcome expectancies (i.e., subjective probability of attaining an outcome by one's actions), action-by-situation-outcome expectancies (i.e., subjective probability that situational factors facilitate or impede one's action-outcome expectancy), and outcome-consequence expectancies (i.e., subjective probability of an outcome to be associated with a specific consequence). In Heckhausen's model, outcomes are the immediate results of one's actions. These immediate results are, or are not, followed by various consequences (e.g., self-evaluation, external evaluation). They do not have any incentive value on their own. Incentive value is attributed only to the *consequences* of one's actions. Therefore, the motivation to act depends mainly on the value that is attached to the consequences of one's behavior.

Rheinberg (1988) argued that Heckhausen's model does not include the possibility of being motivated by characteristics of an action itself, independently of any external consequences. This restriction of Heckhausen's model is less evident when achievement-related behavior is the only focus of analysis. When different domains of behavior are studied, however, the importance of action-specific incentives is clear. Such incentives are similar to



ure 15.1 General model of achievement choices.

trinsic motivation discussed later. Rheinberg (1995) has vestigated a number of different leisure activities, such painting, motorcycling, and playing a musical instruent that are motivated by action-specific incentives, ch as feelings of competence, enjoyment of perfect or rmonic movements, being absorbed in the activity, and elings of self-fulfillment.

Other Expectancy/Self-Concept Related Theory. rter (Ch. 9, this Volume) provides a thorough review of e enormous literature on self-concept development. This rk is relevant here in two ways: First, prominent current uctural models of self-concept, such as those of Harter d her colleagues, Marsh and his colleagues (e.g., Marsh, 89, 1990a; Marsh & Shavelson, 1985) and Eccles and gfield (e.g., Eccles, 1994; Eccles & Wigfield, 1995; cles et al., 1989), focus on domain-specific perceived mpetence as a crucial aspect of self-concept. Because f-concept is usually measured by asking about perceived mpetence, self-concepts and perceived competencies nos are quite similar. Further, like motivation theorists, f-concept researchers are interested in the relation of f-concepts (or perceived competence) to performance in ferent activity arenas. Indeed, like expectancy theorists, rsh (e.g., Marsh, 1990b) has argued that competence iefs predict subsequent performance more strongly than formance predicts subsequent self-concept beliefs. Thus, elf-concept models, as in other theories concerned with question "Can I do this task?", competence beliefs are umed to play a pivotal role in motivating behavior.[1]

n addition, the more process-oriented researchers dying "self" propose that self-concept guides, directs, ulates, and motivates behavior (e.g., Eccles, 1987, 1994; les-Parsons, et al., 1983; Garcia & Pintrich, 1994; rkus & Wurf, 1987). For example, Markus and her colgues discuss how "possible future selves" motivate beior. Possible selves, the vision individuals have of nselves in the future, include both hoped-for (I will geometry) and feared (I will not pass geometry) coments. Because possible selves are not identical to one's ent self-concept, they motivate the individual by prong goals that the individual tries to attain and outcomes that the individual tries to avoid in order to achieve one's image. Whether or not the possible self is attained depends on many things, one of which is the individual's current perceived competence.

Control Theories

Building on the work of Rotter (1966) and the Crandalls (e.g., Crandall et al., 1965), research in control theory has both confirmed the positive association between internal locus of control and academic achievement (see Findley & Cooper, 1983) and elaborated broader conceptual models of control. Connell (1985), for example, added *unknown control* as a third control belief category and argued that younger children are particularly likely to use this category. Connell developed a scale to assess external control (in terms of "powerful others"), internal control (in terms of effort and ability), and unknown control for cognitive, physical, social, and general activities.

Connell and Wellborn (1991) then integrated control beliefs into a broader theoretical framework based on the psychological needs for competence, autonomy, and relatedness (see also Deci & Ryan, 1985; Ryan, 1992). They linked control beliefs to competence needs: Children who believe they control their achievement outcomes should feel more competent. They hypothesized that the extent to which these needs are fulfilled is influenced by the following characteristics of their family, peer, and school contexts: the amount of structure, the degree of autonomy provided, and the level of involvement in the children's activities. Finally, they proposed that the ways in which these needs are fulfilled determine engagement in different activities. When the needs are fulfilled, children will be fully engaged. When one or more of the needs is not fulfilled, children will become disaffected (see Connell, Spencer, & Aber, 1994; Skinner & Belmont, 1993).

Building on Connell's work, E. Skinner and her colleagues (e.g., E. Skinner, 1985, 1995; E. Skinner, Chapman, & Baltes, 1988) proposed a model that includes three critical control-related beliefs: means-ends beliefs, control beliefs, and agency beliefs. Means-ends beliefs concern the expectation that particular causes can produce certain outcomes; these causes include Weiner's various causal attributions and Connell's (1985) unknown control. Agency beliefs are the expectations that one has access to the means to produce various outcomes. Control beliefs are the expectations individuals have that they can produce desired events.

[1] ter, like Eccles and other expectancy-value theorists, also des the importance of the task to the individual as an imant motivational factor.

E. Skinner distinguished her position from attribution theory in two ways: First, she argued that attribution theorists confound means-ends and agency beliefs because they define different causes (or means) without any consideration of the agent implementing these causes. She also faulted attribution theory for being retrospective rather than prospective and argued that her means-ends beliefs correct this problem.

She distinguished her position from self-efficacy theories by noting that self-efficacy theorists discuss connections between agents and means primarily in terms of expectancies that the individual can produce some outcome; thus outcomes are contingent on one's responses. In contrast, she argued that her agency beliefs relate to potential as well as actual means. Further, an individual can have strong agency beliefs for different means without believing that any of the means are necessarily effective (see also Ryan, 1992). In contrast, Bandura (1994) argued that means-ends beliefs are the same as outcome expectations, and agency beliefs are somewhat like efficacy expectations. In addition, Bandura argued that his construct implies a more powerful agent than Skinner's does and that E. Skinner's control belief constructs have little theoretical power because they do not reference specific means to attain outcomes.

Like other cognitive motivational theories, E. Skinner's original control model emphasizes cognitive aspects of motivation and does not systematically deal with constructs like values and affect. However, by including children's needs for competence, autonomy, and relatedness in her most recent writings (e.g., Patrick, Skinner, & Connell, 1993; Skinner, 1995), she has broadened her model in important ways.

Theories Concerned with the Question "Do I Want to Do This Task and Why?"

Although theories dealing with competence, expectancy, and control beliefs provide powerful explanations of individuals' performance on different kinds of achievement tasks, these theories do not systematically address another important motivational question: Does the individual *want* to do the task? Even if people are certain they can do a task, they may not *want* to engage in it. Once the decision is made to engage in a task or activity, there are different reasons for doing so; the "why" part of this question deals with that issue. This section focuses on these theories of motivation.

Modern Expectancy-Value Theories: Expanding the Value Construct

Feather's Work on Values. Feather (e.g., 1982a, 1982b, 1988, 1992) broadened Atkinson's conceptualization of value. Drawing on Rokeach's (1979) work, he defined values as a set of stable, general beliefs about what is desirable and postulated that these beliefs emerge from both society's norms and the individual's core psychological needs and sense of self. He integrated Rokeach's approach to values into an expectancy-value approach by arguing that values are a class of motives that affect behavior by influencing the attractiveness of different goal objects and, consequently, the motivation to attain these goals. Feather confirmed these ideas for several types of behavior including joining political action groups and selecting academic majors. In addition, contrary to Atkinson's predictions, he found that values and expectancies are positively rather than inversely related, suggesting that influences other than just the perceived difficulty of the task determine value; these influences include features of the goal object itself, the valence of success and failure to the individual, and the probability of succeeding on the task. He also concluded that we know little about the origins of these task values.

Eccles, Wigfield, and Colleagues' Work on Subjective Task Values. Eccles and her colleagues have also elaborated the concept of task value. Building on earlier work on attainment values (e.g., Battle, 1965, 1966), intrinsic and extrinsic motivation (e.g., Deci, 1975), and Rokeach's (1979) view that values are shared beliefs about desired end-states, Eccles-Parsons et al. (1983) outlined four motivational components of task value: attainment value, intrinsic value, utility value, and cost. Like Battle (1965, 1966), they defined attainment value as the personal importance of doing well on the task. Drawing on self-schema and identity theories (e.g., Kohlberg, 1966; Markus & Nurius, 1986), they also linked attainment value to the relevance of engaging in a task for confirming or disconfirming salient aspects of one's self-schema; that is, since tasks provide the opportunity to demonstrate aspects of one's actual or ideal self-schema, such as masculinity, femininity, and/or competence in various domains, tasks will have higher attainment value to the extent that they allow the individual to confirm salient aspects of these self-schemas (see Eccles, 1984, 1987). This component of value relates most directly to the perspectives on values

espoused by Feather (1982a, 1982b, 1988) and Rokeach (1979).

Intrinsic value is the enjoyment the individual gets from performing the activity, or the subjective interest the individual has in the subject. This component of value is similar to the construct of intrinsic motivation as defined by Harter (1981), and by Deci and his colleagues (e.g., Deci & Ryan, 1985; Ryan, Connell, & Deci, 1985), and to the constructs of interest and flow as defined by Csikszentmihalyi (1988), Renninger (1990), and Schiefele (1991).

Utility value is determined by how well a task relates to current and future goals, such as career goals. A task can have positive value to a person because it facilitates important future goals, even if he or she is not interested in the task for its own sake. Students often take classes that they do not particularly enjoy but that they need to take to pursue other interests, to please their parents, or to be with their friends. In one sense then, this component captures the more "extrinsic" reasons for engaging in a task (see Harter, 1981, for further discussion of extrinsic motivation). But it also relates directly to individuals' internalized short- and long-term goals.

Finally, Eccles and her colleagues identified "cost" as a critical component of value (Eccles, 1987; Eccles-Parsons et al., 1983). Cost is conceptualized in terms of the negative aspects of engaging in the task, such as performance anxiety and fear of both failure and success as well as the amount of effort needed to succeed and the lost opportunities that result from making one choice rather than another.

Eccles and her colleagues have confirmed different aspects of this model. For example, they have shown that ability self-concepts and expectancies for success predict performance in mathematics and English, whereas task values predict course plans and enrollment decisions in mathematics, physics, and English and involvement in sport activities even after controlling for prior performance levels (Eccles, Adler, & Meece, 1984; Eccles, Barber, Updegraff, & O'Brien, 1995; Eccles & Harold, 1991; Eccles-Parsons et al., 1983; Meece et al., 1990). They have also shown that both expectancies and values predict career choices (see Eccles, 1994). These findings suggest possible modifications to the model in Figure 15.1, where direct paths are drawn from both expectancies and values to performance, persistence, and choice. These results suggest reconsidering the direct paths from expectancies to choice once prior achievement level is controlled, and from values to performance (see Wigfield & Eccles, 1992).

Expectancy-value models continue to be prominent. The most important contributions of the contemporary models are the elaboration of the values construct and the discussion of whether expectancies and values relate differentially to performance and choice. More work is needed on how the links of expectancies and values to performance and choice change across ages (see Eccles, Wigfield, & Blumenfeld, 1984; Wigfield, 1994) and on the links between expectancies and values. Both Eccles (1984) and Bandura (1994) propose a positive association between expectancy-related beliefs and task values. Their findings support this prediction. Most of the work, however, does not provide the kind of evidence necessary to evaluate the causal direction inherent in this relation.

Like attribution theory, modern expectancy-value theory has been criticized for overly emphasizing rational cognitive processes. Fischoff, Goitein, and Shapira (1982) argued that the logical, rational decision-making processes of determining expectancies and valences are often not used because people prefer simpler, but more fallible and optimistic, decision-making strategies. They also argued that task values shift fairly rapidly, particularly for unfamiliar tasks. These criticisms are likely to be particularly apropos when these models are considered from a developmental perspective (see Wigfield, 1994). However, the impressive body of research showing the relations of expectancy and values to different kinds of performance and choice supports the continuing viability of these models. Furthermore, as conceptualized by Eccles and her colleagues, values are linked to more stable self-schema and identity constructs and choice is not necessarily the result of conscious rational decision-making processes (see Eccles, 1987; Eccles & Harold, 1992). By including affective memories, culturally based stereotypes, and identity-related constructs and processes as part of their theoretical system, Eccles and her colleagues have allowed for less rational and more nonconscious processes in motivated behavioral choices.

Intrinsic Motivation Theories

The following theories deal with the distinction between *intrinsic* motivation and *extrinsic* motivation. When individuals are intrinsically motivated they do activities for their own sake and out of interest in the activity. When extrinsically motivated, individuals do activities for instrumental or other reasons, such as receiving a reward. This distinction is assumed to be fundamental throughout the motivation literature.

Harter's Effectance Motivation Theory. Harter (see 1983) proposed a model of mastery (or effectance) motivation, describing the effects of both success and failure experiences on mastery motivation. She proposed that successful mastery attempts that (initially) are positively reinforced lead to internalization of the reward system. They also enhance perceptions of competence and perceived internal control over outcomes, give the individual pleasure, and ultimately increase mastery motivation. In contrast, when mastery attempts fail, the need for approval by others persists, with a corresponding increase in external control beliefs, lower competence beliefs, higher anxiety in mastery situations, and ultimately, lower mastery motivation. This model is important because it includes the effects of both success and failure on subsequent motivation. Moreover, many of the links in the model, such as those between competence beliefs and intrinsic motivation, and optimal challenge and competence beliefs, have received empirical support (e.g., Harter 1983). Based in part on this model, Harter (1981) developed a scale measuring different aspects of intrinsic and extrinsic motivation.

Self-Determination Theory. Over the past 25 years, many studies have documented the debilitating effects of extrinsic incentives and pressures on the motivation to perform even inherently interesting activities (e.g., see Amabile, Hill, Hennessey & Tighe, 1994; Cameron & Pierce, 1994; Deci & Ryan, 1985; Lepper, 1988). There is still debate, however, over why human beings are intrinsically motivated for particular activities. This debate began with two different theories: (a) Humans are motivated to maintain an optimal level of stimulation (Berlyne, 1967; Hebb, 1955; Hunt & Paraskevopoulos, 1980), and (b) basic needs for competence (White, 1959) and personal causation or self-determination (deCharms, 1968) underlie intrinsically motivated behavior. Deci and Ryan (1985) have integrated these two approaches into their theory of self-determination by suggesting that the basic need for competence is the major reason people seek out optimal stimulation and challenging activities. In addition, they argued that intrinsic motivation is maintained only when actors feel competent and self-determined. Evidence that intrinsic motivation is reduced by exerting external control and by giving negative competence feedback supports this hypothesis (see Deci & Ryan, 1985).

Deci and Ryan (1985) also argued, however, that the basic needs for competence and self-determination play a role in more extrinsically motivated behavior. Consider, for example, a student who consciously and without any external pressure selects a specific major because it will help him or her earn a lot of money. This student is guided by basic needs for competence and self-determination but the choice of major is based on reasons totally extrinsic to the major itself.

Deci, Ryan, and their colleagues (e.g., Ryan, 1992) went beyond the extrinsic-intrinsic motivation dichotomy in their discussion of *internalization*, the process of transferring the regulation of behavior from outside to inside the individual. Deci and Ryan (1985) postulated that a basic need for interpersonal relatedness explains why people turn external goals into internal goals through internalization. They defined several levels of regulations: *external regulation* coming from outside the individual; *introjected regulation* based on feelings that he or she should or has to do the behavior; *identified regulation* based on the utility of that behavior (e.g., studying hard to get grades to get into college), and finally, *integrated regulation* based on what the individual thinks is valuable and important to the self. Even this latter level is not fully internalized and self-determined since it does require that the individual is also highly interested in the behavior. These levels of regulation have some similarities to the different kinds of values defined by Eccles and her colleagues. Deci and colleagues have developed scales to measure these levels.

Flow Theory. Csikszentmihalyi (1988) discussed intrinsically motivated behavior in terms of the immediate subjective experience that occurs when people are engaged in the activity. Interviews with climbers, dancers, chess players, basketball players, and composers revealed that these activities yield a specific form of experience—labeled *flow*—characterized by (a) holistic feelings of being immersed in, and of being carried by, an activity; (b) merging of action and awareness; (c) focus of attention on a limited stimulus field; (d) lack of self-consciousness; and (e) feeling in control of one's actions and the environment. Flow is only possible when people feel that the opportunities for action in a given situation match their ability to master the challenges. The challenge of an activity may be something concrete or physical like the peak of a mountain to be scaled, or it can be something abstract and symbolic, like a set of musical notes to be performed, a story to be written, or a puzzle to be solved. Research has shown that both the challenges and skills must be relatively high before a flow experience becomes possible (Massimini & Carli, 1988).

At first sight, the theories of Deci and Ryan and Csikszentmihalyi seem very different. Deci and Ryan (1985) explain intrinsic motivation by assuming innate, basic needs, whereas Csikszentmihalyi stresses subjective experience. We suggest, however, that this difference reflects two sides of the same coin. As Schneider (in press) has argued, one has to distinguish between immediate reasons (e.g., enjoyment) and ultimate reasons of behavior (e.g., survival). Intrinsically motivated behavior can be conducive to ultimate goals even though the actor is only motivated by immediate incentives. A typical case is exploratory or play behavior. Both types of behavior help to increase an individual's competence but they are usually performed because they are exciting, pleasurable, or enjoyable. This distinction between immediate and ultimate causes of behavior makes it possible to reconcile the positions of Deci and Ryan and Csikszentmihalyi. Deci and Ryan (1985) focus on ultimate reasons of behavior, whereas Csikszentmihalyi (1988) focuses on immediate reasons. Csikszentmihalyi and Massimini (1985) suggested that the experience of flow is a reward that ensures that individuals will seek to increase their competence. According to Csikszentmihalyi, the repeated experience of flow is only possible when individuals seek out increasingly challenging tasks and expand their competencies to meet these challenges. Thus, the experience of flow should reinforce behaviors underlying development.

Individual Difference Theories of Intrinsic Motivation. Until recently, intrinsic motivation researchers such as Deci and Ryan and Csikszentmihalyi have dealt with conditions, components, and consequences of intrinsic motivation without distinguishing between intrinsic motivation as a state versus intrinsic motivation as a traitlike characteristic. However, interest in traitlike individual differences in intrinsic motivation has increased, particularly among educational psychologists (see Amabile et al., 1994; Harackiewicz, 1986, 1990; Harter, 1981; Nicholls, 1984, 1989; Schiefele, 1996a, 1982b; Schiefele & Schreyer, 1994). These researchers define this enduring intrinsic motivational orientations in terms of three components: (a) preference for hard or challenging tasks; (b) learning driven by curiosity or interest; and (c) striving for competence and mastery. The second component is most central to the idea of intrinsic motivation. Both preference for hard tasks and striving for competence can be linked to either extrinsic or more general need achievement motivation. Nonetheless, empirical findings suggest that the three components are highly correlated. In addition, evidence suggests that high levels of traitlike intrinsic motivation facilitate positive emotional experience (Matsumoto & Sanders, 1988), self-esteem (Ryan, Connell, & Deci, 1985), mastery-oriented coping with failure, high academic achievement (Benware & Deci, 1984; Schiefele & Schreyer, 1994), and use of appropriate learning strategies (Pintrich & Schrauben, 1992; Schiefele & Schreyer, 1994). As a consequence, many have suggested that the development of an intrinsic motivational orientation should be fostered in the home and the classroom (e.g., Batson & Johnson, 1976; Brophy, 1987; Dewey, 1913; Lepper & Chabay, 1985).

Interest Theories

Closely related to the notion of intrinsic motivation is the work on interest (Alexander, Kulikowich, & Jetton, 1994; Hidi, 1990; Renninger et al., 1992; Renninger & Wozniak, 1985; Schiefele, 1991; Tobias, 1994). These researchers differentiate between individual and situational interest. Individual interest is a relatively stable evaluative orientation toward certain domains; situational interest is an emotional state aroused by specific features of an activity or a task. Two aspects or components of individual interest are distinguishable (Schiefele, 1991, 1996a, 1996b): feeling-related and value-related interest. Feeling-related interest refers to the feelings associated with an object or an activity itself such as involvement, stimulation, or flow. Value-related interest refers to the personal significance or importance of an object. In addition, both feeling-related and value-related interests are directly related to the object rather than to the relation of this object to other objects or events. For example, if students associate mathematics with high personal significance because mathematics can help them get prestigious jobs, then we would not speak of interest. Although feeling-related and value-related interests are highly correlated (Schiefele, 1996a), it is useful to differentiate between them because some individual interests are based primarily on feelings, whereas other interests are based more on personal significance (see Eccles, 1984; Wigfield & Eccles, 1992). Further research is necessary to validate this assumption.

Much of the research on individual interest has focused on its relation to the quality of learning (see Alexander, Kulikowich, et al., 1994; Renninger, Hidi & Krapp, 1992; Schiefele, 1996a). In general, there are significant but moderate relations between interest and text learning. More importantly, interest is related more strongly to indicators of deep-level learning (e.g., recall of main ideas, coherence of recall, responding to deeper comprehension questions, representation of meaning) than to surface-level learning (e.g., responding to simple questions, verbatim representation of text; Schiefele, 1996b; Schiefele & Krapp, in press).

Most of the research on situational interest has focused on the characteristics of academic tasks that create interest (e.g., Anderson, Shirey, Wilson, & Fielding, 1987; Hidi & Baird, 1986; Teigen, 1987). The following text features arouse situational interest: personal relevance, novelty, activity level, and comprehensibility (Hidi & Baird, 1986). Empirical evidence has provided strong support for the relation between situational interest and text comprehension and recall (see reviews by Schiefele, 1996a, 1996b; Wade, 1992).

Goal Theories

Recently researchers have become interested in children's achievement goals and their relation to achievement behavior (see Ames & Ames, 1989; Harackiewicz & Elliot, 1993; Locke & Latham, 1990; Meece, 1991, 1994). Several different approaches have emerged. Bandura (1986) and Schunk (1990, 1991), focusing on goals' proximity, specificity, and level of challenge, have shown that specific, proximal, and somewhat challenging goals promote both self-efficacy and improved performance.

Another set of researchers have defined goals in terms of the individual's immediate achievement-related focus and definition of success (e.g., Ames, 1992; Blumenfeld, 1992; Butler, 1993; Dweck & Leggett, 1988; Nicholls, 1984). Nicholls and his colleagues (e.g., Nicholls, 1979b; Nicholls, Cobb, Yackel, Wood, & Wheatley, 1990) for example, defined three major kinds of motivationally relevant goal patterns or orientations: ego-involved goals, task-involved goals, and work avoidant goals. Individuals with ego-involved goals seek to maximize favorable evaluations and minimize negative evaluations of their competence. Questions such as "Will I look smart?" and "Can I outperform others?" reflect ego-involved goals. In contrast, individuals with task-involved goals focus on mastering tasks and increasing their competence. Questions such as "How can I do this task?" and "What will I learn?" reflect task-involved goals. Individuals with work avoidant goals seek to minimize the effort expended. Dweck and her colleagues proposed a complementary analysis (e.g., Dweck & Elliott, 1983; Dweck & Leggett, 1988) distinguishing between performance goals (similar to ego-involved goals) and learning goals (similar to task-involved goals). Similarly, Ames (1992) distinguished between the association of performance (similar to ego-involved) goals and mastery (similar to task-focused) goals with both performance and task choice. With ego-involved (or performance) goals, children try to outperform others, and are more likely to do tasks they know they can do. Task-involved (or mastery-oriented) children choose challenging tasks and are more concerned with their own progress than with outperforming others.

Goal theories focused on this distinction between performance versus mastery orientations are currently very popular among researchers interested in both the determinants of performance and task choice (e.g., Butler, 1989a, 1989b), and the restructuring of schools to enhance motivation (e.g., Ames, 1992; Maehr & Midgley, 1996; see later discussion). By and large, consistent support for the benefits of task involved or learning goals is emerging. We are concerned, however, that categorizing children's goals as ego or task involved oversimplifies the complexity of motivation even when these two goal orientations are allowed to exist simultaneously. Further, work in this tradition often does not take the effects of the particular achievement domain into account (for an important exception, see Meece, 1991, 1994).

Other researchers (e.g., Ford, 1992; Wentzel, 1991b) have adopted a different perspective on goals and motivation, arguing that individuals can have many different kinds of goals in achievement settings. For example, Ford proposed a complex motivation theory based on the assumption that humans are goal directed and self-organized (e.g., Ford, 1992). He defined goals as the desired end-states people try to attain through the cognitive, affective, and biochemical regulation of their behavior. Furthermore, Ford defined goals as only one part of motivation; in his model, motivation is defined as the product of goals, emotions, and personal agency beliefs. Finally, Ford derived a set of principles for optimizing motivation based on his theory.

Returning to goals in particular, Ford and his colleagues have developed an extensive taxonomy of goals based on their *content* rather than on the criteria used to define success of failure. Ford and Nichols (1987) distinguished most broadly between *within-person* goals, which concern desired within-person consequences, and *person-environment* goals, which concern the relation between the person and his or her environment. Similar to Rokeach's (1979) human values and Eccles' attainment value (Eccles-Parsons et al., 1983), the within-person goals include affective goals (e.g., happiness, physical well-being), cognitive goals (e.g., exploration, intellectual creativity), and subjective organization goals

(e.g., unity, transcendence). These goals include self-assertive goals such as self-determination and individuality, integrative social relationship goals such as belongingness and social responsibility, and task goals such as mastery, material gain, and safety. Although Ford and Nichols (1987) developed measures to assess all 24 goals specified in Ford's model, their evidence suggests that people typically rely on a much smaller cluster of core goals in regulating their behavior.

Building on Ford's work, Wentzel (e.g., Wentzel 1991a, 1993, in press) has examined the multiple goals of adolescents in achievement settings. Because Wentzel also focuses on the content of children's goals, her definition of goals is similar to the idea of attainment value hierarchies in the Eccles et al. expectancy value model. Wentzel has demonstrated that both social and academic goals relate to adolescents' school performance and behavior; specifically school achievement is positively related to wanting to be both successful and dependable, wanting to learn new things, and wanting to get things done (see Juvonen & Wentzel, in press; Wentzel, 1991a, 1991b). Furthermore, Wentzel (1994) demonstrated very interesting relations among the various goals of middle school children: Prosocial goals (such as helping others), academic prosocial goals (such as sharing learning with classmates), peer social responsibility goals (such as following through on promises made to peers), and academic social responsibility goals (such as doing what the teacher says to do) were all related to each other (Wentzel, 1994). She also documented intriguing patterns in the relations of these children's goals to both their behavior and their relationships with their peers and teachers: Prosocial goals (particularly academic prosocial goals) related positively to peer acceptance; academic responsibility goals related negatively to peer acceptance but positively to acceptance by teachers; positive prosocial and academic goals related positively to prosocial behaviors (as rated by teachers) and negatively to irresponsible behaviors; And finally, the pursuit of positive social goals was facilitated by perceived support from teachers and peers. These findings warrant further investigation.

Summary

We have seen a gradual increase in the complexity of theoretical frameworks for addressing issues related to task value, interest, and goals. Ford and Wentzel have developed the most comprehensive perspectives on multiple goals. Wigfield and Eccles (1992) suggested several links between theories of subjective task value, interest, and goals. But additional theoretical and empirical work are badly needed to integrate these various perspectives.

Theories Concerned with the Question "What Do I Have to Do to Succeed on This Task?"

Motivation theorists have become interested in the specific ways children regulate their behavior to meet their goals (e.g., see Schunk & Zimmerman, 1994). Some have suggested links between motivational beliefs and the use of particular cognitive strategies (e.g., P. A. Alexander et al., 1994; Pintrich, Marx, & Boyle, 1993; Pintrich & Schrauben, 1992). Further, Kuhl (1987) and Corno and Kanfer (1993) argued for the distinction between motivation and volition, with motivation guiding decisions about engaging in particular activities, and volition guiding the behaviors used to attain the goal. Broadly, these theorists focus on two issues: how motivation gets translated into regulated behavior, and how motivation and cognition are linked.

Social Cognitive Theories of Self-Regulation and Motivation

Reviewing the extensive literature on the self-regulation of behavior is beyond the scope of the chapter (see Borkowski, Carr, Relliger, & Pressley, 1990; Bullock, 1991). We focus on the work of Zimmerman, Schunk, and their colleagues because they directly link motivation to self-regulation. Zimmerman (1989) described self-regulated students as being metacognitively, motivationally, and behaviorally active in their own learning processes and in achieving their own goals. Following Bandura (1986), Zimmerman posited reciprocally related personal, environmental, and behavioral determinants of self-regulated learning that allow individuals to control the extent to which they are self-regulated through personal and behavioral actions and choices. He also acknowledged, however, that context is important in that environments vary in how much latitude they afford for choice of activities or approaches.

According to Zimmerman (1989), self-regulated learners have three important characteristics. First, they use *self-regulated strategies* (active learning processes that involve agency and purpose). Second, self-regulated students believe they can perform efficaciously. Third, self-regulated students set numerous and varied *goals* for themselves. Further, self-regulated learners engage in three important processes: *self-observation* (monitoring of one's activities); *self-judgment* (evaluation of how well one's own performance compares with a standard or with the performance of others); and *self-reactions* (reactions to performance

outcomes). When these reactions are favorable, particularly in response to failure, students are more likely to persist. As proposed by attribution theorists, the favorableness of one's reaction to failure is determined by how individuals interpret their difficulties and failures. Zimmerman and Bonner (in press) discussed the advantages of attributing difficulties to ineffective strategy use rather than to a more general attribution of not trying.

In his discussions of self-efficacy and self-regulation, Schunk (e.g., 1994) emphasizes the reciprocal roles of goal-setting, self-evaluation, and self-efficacy. He has discussed goals in two ways: Initially, he argued and demonstrated that when goals are proximal, specific, and challenging they are most effective in motivating children's behavior and increasing their sense of self-efficacy (Schunk, 1990, 1991). More recently, Schunk (1994) discussed how self-efficacy might be influenced by the learning and performance goal types discussed earlier, suggesting that self-efficacy should be higher under learning than under performance goals; some research supports this claim (e.g., Elliott & Dweck, 1988; Meece, Blumenfeld, & Hoyle, 1988).

The social cognitive view of self-regulation emphasizes the importance of self-efficacy beliefs, causal attributions, and goal-setting in regulating behavior directed at accomplishing a task or activity. Once children engage in a task, then they must monitor their behavior, judge its outcomes, and react to those outcomes to regulate what they do. Because these processes require relatively sophisticated cognitive processes, it is likely that very young children seldom engage in them.

Theories Linking Motivation and Cognition

Some motivation researchers are interested in how motivation and cognition interact with one another to influence self-regulated learning (e.g., Borkowski & Thorpe, 1994; Paris & Byrnes, 1989). Winne and Marx (1989) suggested that motivation should be conceived in cognitive processing terms, and that motivational thoughts and beliefs are governed by the basic principles of cognitive psychology, differing from other thoughts and beliefs only in their content. Winne and Marx further discussed the conditions under which tasks are performed, the operations needed to complete the task, the product the student produces when the task is completed, and the evaluation of the task and how motivation can influence each aspect.

Borkowski and his colleagues (e.g., Borkowski et al., 1990; Borkowski & Muthukrisna, 1995) developed a model highlighting the interaction of the following cognitive, motivational, and self-processes: knowledge of oneself (including one's goals, possible selves, and sense of self-worth), domain-specific knowledge, strategy knowledge, and personal-motivational states (including attributional beliefs, self-efficacy, and intrinsic motivation). More specifically, Borkowski and Thorpe (1994) stressed the importance of a belief in both an incremental view of ability and the utility of carefully applied effort, intrinsic motivation, low anxiety, and positive academic-focused possible selves for preventing underachievement. In their intervention work with learning-disabled or low-achieving children, Borkowski and his colleagues showed that teaching both learning strategies and an understanding that effort and a sense of personal control can produce successful performance is more effective than strategy instruction alone (Carr & Borkowski, 1989; Carr, Borowski, & Maxwell, 1991).

Pintrich and Schrauben (1992) also outlined a model of the relations between motivation and cognition with several components including student entry characteristics (e.g., prior achievement levels), the social aspects of the learning setting (e.g., the social characteristics of the tasks and the interactions between students and teachers during instruction), several motivational constructs derived from expectancy-value and goal theories (expectancies, values, and affect), and various cognitive constructs (e.g., background knowledge, learning strategies, and self-regulatory and metacognitive strategies). Pintrich and Schrauben (1992) postulated that the cognitive and motivational constructs influence each other as well as being influenced by the social context in which the learning is taking place. In turn, both the cognitive and motivational constructs are assumed to influence students' involvement with their learning, and consequently, achievement outcomes.

Pintrich and De Groot (1990) tested this model with both junior high school and college students. Perceived self-efficacy and task values related positively to the reported use of cognitive strategies and self-regulation. The relations between achievement values, strategy use, and self-regulation were stronger than those between self-efficacy, strategy use, and self-regulation. As found by Eccles, Wigfield, and their colleagues, expectancies related more strongly than achievement values to performance. However, as predicted, they also found that cognitive strategy and self-regulation most directly predicted performance. The relations of self-efficacy and task values to performance were mediated through their association with both learning and self-regulation strategies (cf., Pokay & Blumenfeld, 1990). Consistent with the expectancy-value models of Eccles-Parsons and her colleagues (e.g., 1983)

and Bandura's (1994) model of self-efficacy, Pintrich and De Groot concluded that achievement values determine initial engagement decisions with self-efficacy then facilitating both engagement and performance in conjunction with cognitive and self-regulation strategies. Although these hypotheses need to be tested longitudinally and in varied activity domains, these results provide good preliminary evidence of the ways motivation and cognition work together to facilitate (or impede) performance on different academic tasks.

Many of the possible links in both the Borkowski and Muhukrishna and the Pintrich and Schrauben models remain unexamined. Pintrich et al. (1993) presented a more fully articulated discussion of links of motivation and cognition, with specific reference to conceptual change. They discussed how traditional "cold" cognitive psychological models of conceptual change do not consider the motivational and contextual factors that likely influence conceptual development. They described and provided preliminary evidence of how various classroom and motivational factors such as goals, achievement values, efficacy beliefs, and control beliefs can influence whether students change their mental concepts. They also stressed the relative paucity of research on these relations.

Theories of Motivation and Volition

The term "volition" refers to both the strength of will needed to complete a task and diligence of pursuit (Corno, 1993). Kuhl (1987) argued that many motivational theorists have ignored volitional processes by assuming that motivation leads directly to outcomes. He argued instead that motivational processes only *lead* to the decision to act. Once the individual *engages* in action, volitional processes take over and determine whether or not the intention is fulfilled (cf., Zimmerman, 1989). Distracters can waylay even the strongest intentions to complete a task or activity. Kuhl proposed several specific volitional strategies to explain persistence in the face of distractions and other opportunities:

1. *Cognitive control strategies* that help individuals stay focused on the relevant information, avoid distracting information, and optimize decision making; selective attention, encoding control, and parsimony of information processing are three cognitive strategies.
2. *Emotional control strategies* that keep inhibiting emotional states such as anxiety and depression in check.
3. *Motivational control strategies* that strengthen the current behavior's motivational base particularly when the intention is weak relative to other possible competing intentions.
4. *Environmental control strategies* that constrain or enhance one's environment to facilitate the motivated behavior such as turning off the TV while studying.

Finally, Kuhl proposed that some individuals (those with an *action orientation*) are more likely to engage in these volitional strategies than *state-oriented* individuals.

Corno discussed volition in the context of student achievement as "a dynamic system of psychological control processes that protect concentration and direct effort in the face of personal and/or environmental distractions, and so aid learning and performance" (Corno, 1989, p. 16). She provided several examples of the volitional challenges students face (coordinating multiple demands and desires such as doing homework, watching TV, or calling a friend; dealing with the many distractions in any particular context such as a classroom; and clarifying often vaguely specified goals and assignments). She focused on Kuhl's (1985) motivation and emotion control strategies because strengthening one's motivation to complete a task and managing one's negative emotional states are often crucial to successful academic performance. Corno also argued that volition is a broader concept than self-regulation because volition includes personality characteristics, aptitudes, and other cognitive processes, while most models of self-regulation focus more narrowly on self-monitoring and self-evaluation (see also Corno & Kanfer, 1993).

The development of good volitional control and self-regulation is widely acknowledged as an important socialization outcome. Jackson (1968) stressed the need for schoolchildren to learn patience and control over their immediate impulses in order to deal effectively with the delays, obstructions, and rules that are an ever-present part of schooling. Indeed, Corno and Kanfer (1993) argued that the acquisition of volitional skills such as persistence and patience are essential elements of becoming good citizens in both school and, later, in the workplace. However, because the volition construct has only recently resurfaced in psychology, there has been relatively little research on its relation to motivation and performance.

Academic Help Seeking

Some researchers have argued that knowing when help is needed is another important aspect of self-regulation and volition. Children learn to do many tasks on their own; indeed, schools and parents often encourage children to become independent and self-reliant. However, there are times when children need help. Both Nelson-Le Gall and her colleagues (e.g., Nelson-Le Gall & Glor-Shieb, 1985; Nelson-Le Gall & Jones, 1990) and Newman and his colleagues (e.g., Newman, 1990, 1994; Newman & Goldin, 1990; Newman & Schwager, 1995) have articulated models that stress the difference between children's appropriate and inappropriate help seeking. Appropriate help seeking (labeled *instrumental* help seeking by Nelson-Le Gall and *adaptive* help seeking by Newman) involves deciding that one doesn't understand how to complete a problem after having tried to solve it on one's own, figuring out what and whom to ask, developing a good question to get the needed help, and processing the information received appropriately in order to complete the problem-solving task. Instrumental help seeking can foster motivation by keeping children engaged in an activity when they experience difficulties. Newman (1994) has found that children are most likely to seek adaptive help when they are self-regulated and have strong competence beliefs, and have mastery-oriented learning goals.

Summary

Some of the most promising current work in motivation focuses on the link between motivational constructs and the cognitive processes underlying both the acquisition of new material and skills and optimal performance of learned material and skills. Although some of this work builds on the tradition of remediation of motivational problems, the newest work integrates the fields of cognitive science, social cognition, personality, and motivation. Such work is opening new theoretical perspectives and promising more effective intervention strategies. More work is needed adapting these findings for children of different ages in different contexts.

THE DEVELOPMENT OF MOTIVATION: WITHIN-PERSON CHANGE AND GROUP DIFFERENCES

Developmental and educational psychologists have focused on two major developmental questions: (a) How do the beliefs, values, and goals develop during childhood and adolescence? (b) What explains the emergence of individual differences in motivation? Three broad sources of influence have been considered: (a) within-person changes resulting from growth and maturation in cognitive processing, emotional development, or other individual characteristics; (b) socially mediated developmental changes resulting from systematic age-related changes in the social contexts children experience at home, in school, and among peers as they grow up; and (c) socially mediated influences that differ across individuals and contexts. These different sources often interact with one another but the nature of this interaction is rarely studied. Consequently, our discussion of the development of motivation and of individual differences in motivation is organized around these three broad categories of influence. First, we present work on within-person changes, beginning with work on children's early self-evaluations, and then describing the work on within-person changes in the constructs discussed thus far. We also include a consideration of the development of motivational problems, and of sex and ethnic differences in motivation. In the last three sections, we describe parent and family influences; then school influences, and finally peer influences.

Early Development of Self-Evaluation

Some researchers have looked at very young children's reactions to success and failure because these reactions provide one foundation for the development of the different motivational beliefs, values, and goals discussed in this chapter. Heckhausen (1984, 1987) found that children between 2½ and 3½ years of age start to show self-evaluative, nonverbal expressions following a successful or unsuccessful action. The earliest indicators of achievement motivation were facial expressions of joy after success and sadness after failure. The experience of success (around 30 months) preceded the experience of failure (around 36 months). Several months later, children showed postural expressions of pride and shame following success and failure. When competing with others, 3- and 4-year-old children initially showed joy after winning and sadness after losing. It was only when they looked at their competitor that they expressed pride and shame.

Stipek, Recchia, and McClintic (1992) identified three stages of development in their young children's self-evaluations: The children younger than 22 months were neither concerned with others' evaluation of their performance nor self-reflective in their evaluations. However, they did show positive emotional reactions to accomplishing a task and negative emotions when they did not. Thus, unlike Heckhausen, Stipek et al. found that reactions to success and failure occurred at the same time in development. Two-year-olds reacted more to others' evaluations by seeking approval when they did well and turning away

when they did poorly. After age 3, the children were able to evaluate their own performance, without needing to see how adults reacted to that performance, and engaged in more autonomous self-evaluation. Children 3 and older also reacted more strongly to winning and losing than did younger children.

Taken together, these studies show that reactions to success and failure begin early in the preschool years, likely laying the groundwork for the development of motivation in the middle childhood years. The results concerning children's reactions to failure are particularly important because they suggest that children are more sensitive to failure in the preschool years than was once believed (see also Burhans & Dweck, 1995).

The Development of Competence-Related Beliefs

Much of the work on the development of children's achievement-related beliefs has looked at the development of children's ability and expectancy-related beliefs (e.g., see Dweck & Elliott, 1983; Stipek & Mac Iver, 1989). We discuss three kinds of changes in these beliefs: change in their factorial structure, in mean levels, and in children's understanding of them.

The Factorial Structure of Children's Competence-Related Beliefs

Developmental theorists such as Werner (1957) have proposed that many characteristics change with age from a global to a more differentiated state. Harter (1983) discussed how children begin with broad understandings of whether they are "smart" or "dumb," that later develop into a more fine-grained and differentiated understanding of their competencies across different activities. Researchers examining this hypothesis with factor analytic approaches have found that even very young elementary schoolchildren distinguish their competence self-perceptions across different domains of competence (e.g., Eccles, Wigfield, Harold, & Blumenfeld, 1993; Harter, 1982; Harter & Pike, 1984; Marsh & Hocevar, 1985). For example, Eccles, Wigfield, et al. (1993), Marsh, Barnes, Cairns, & Tidman (1984), and Wigfield, Eccles, Yoon, et al. (1996) demonstrated that even kindergarten and first-grade children's beliefs about their competencies are differentiated across many different domains including math, reading, music, sports, general school ability, physical appearance, and both peer and parent relations. Apparently, the differentiation process begins very young for ability beliefs—as young as we have been able to reliably measure these beliefs. This does not mean, however, that there is no change or refinement in children's beliefs from kindergarten through high school. As one might expect, the younger children in the Eccles, Wigfield, et al. (1993) study gave more extreme responses, used fewer of the scale points, and their responses correlated less well with both their teachers' and their parents' estimates of their competencies (Wigfield, Eccles, Yoon, et al., 1996). So, although the first graders' responses yielded a well-differentiated factor structure, their responses became more finely tuned and more strongly related to external indicators of their performance as they got older, particularly during the first 3 to 4 years of elementary school.

Some of these researchers (Eccles & Wigfield, 1995; Eccles, Wigfield, et al., 1993) also have used factor analytic strategies to access whether children's competence beliefs and expectancies for success are distinct constructs. Both children's and adolescents' data suggest that ratings of their own current competence, expectancies for success, and perceived performance load on the same factor, suggesting that these components comprise a single concept for children aged 6 to 18.

Change in the Mean Level of Children's Competence-Related Beliefs

Several researchers have found that children's competence-related beliefs for different tasks decline across the elementary school years and into the middle school years (see Dweck & Elliott, 1983; Eccles & Midgley, 1989; Stipek & Mac Iver, 1989). To illustrate, in Nicholls (1979a), most first graders ranked themselves near the top of the class in reading ability, and there was no correlation between their ability ratings and their performance level. In contrast, the 12-year-olds' ratings were more dispersed and correlated highly with school grades (.70 or higher). Similar results have emerged in cross-sectional and longitudinal studies of children's competence beliefs in various academic and nonacademic domains by Eccles and her colleagues (e.g., Eccles, Wigfield, et al., 1993; Wigfield, Eccles, Yoon, et al., 1996) and Marsh (1989). These declines, particularly for math, often continue into, and through, secondary school (Eccles-Parsons et al., 1983; Eccles et al., 1989; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991).

Expectancies for success also decrease during the elementary school years. In most laboratory-type studies, 4- and 5-year old children expect to do quite well on specific tasks, even after repeated failure (e.g., Parsons & Ruble, 1977; Stipek, 1984). Stipek (1984) argued that young children's optimistic expectancies may reflect hoped-for outcomes rather than real expectations; in addition, Parsons and Ruble (1977) suggested that, since young children's skills improve rapidly, high expectancies for future success may be based on experience (see also Dweck & Elliott, 1983). Across the elementary school years, however, children become more sensitive to both success and failure experiences and their expectancies of success become more directly linked to their actual performance history (see Assor & Connell, 1992; Eccles, Midgley, & Adler, 1984; Parsons & Ruble, 1972, 1977; Stipek, 1984).

In contrast to these early studies using self-report measures, researchers using different methods (either asking different kinds of questions, or observing young children's reactions to their performance on different tasks) have shown that not all young children are optimistic about their abilities. In Heyman, Dweck, and Cain (1993), some preschool children reacted quite negatively to failure, reporting that their failures mean that they are not good people. Similarly in Stipek, et al. (1992), preschool children as young as 2 reacted both behaviorally and emotionally to failure experiences.

In summary, children's competence beliefs and expectancies for success become more negative as they get older, at least through the early adolescence time period. The negative changes in children's competence-related beliefs have been explained in two ways: First, because children become much better at understanding, interpreting, and integrating the evaluative feedback they receive, and engage in more social comparison with their peers, children become more accurate or realistic in their self-assessments, leading some to become relatively more negative (see Dweck & Elliott, 1983; Nicholls, 1984; Parsons & Ruble, 1977; Ruble, 1983; Shaklee & Tucker, 1979; Stipek & Mac Iver, 1989). Second, because changes in the school environment make evaluation more salient and competition between students more likely, some children's self-assessments will decline as they get older (e.g., see Blumenfeld, Pintrich, Meece, & Wessels, 1982; Eccles & Midgley, 1989; Eccles, Midgley, & Adler, 1984; Stipek & Daniels, 1988).

Changes in Children's Understanding of Competence-Related Beliefs

Several researchers have investigated children's understanding of ability, effort, task difficulty, and intelligence. For example, Nicholls and his colleagues asked children questions about ability, intelligence, effort, and task difficulty, and about how different levels of performance can occur when children exert similar effort (e.g., Nicholls, 1978; Nicholls, Patashnick, & Mettetal, 1986). They found four relatively distinct levels of reasoning: At Level 1 (ages 5–6), effort, ability, and performance are not clearly differentiated in terms of cause and effect. At Level 2 (ages 7–9), effort is seen as the primary cause of performance outcomes. At Level 3 (ages 9–12), children begin to differentiate ability and effort as causes of outcomes, but they do not always apply this distinction. Finally, at Level 4, adolescents clearly differentiate ability and effort, and understand the notion of ability as capacity. They also believe that ability can limit the effects of additional effort on performance, that ability and effort are often related to each other in a compensatory manner, and, consequently, that success requiring a great deal of effort likely reflects limited ability (cf., Kun, Parsons, & Ruble, 1974).

Dweck and her colleagues (e.g., Dweck & Elliott, 1983; Dweck & Leggett, 1988) have also studied children's understanding of intelligence and ability. They hypothesized that children hold one of two views: An *entity* view that intelligence or ability is a stable trait, or an *incremental* view that intelligence or ability is changeable and can be increased through effort. Although Dweck's entity view of intelligence seems similar to the notion of "ability as capacity," Nicholls (1990) argued that Dweck and her colleagues equate "ability" and "intelligence" in their work, thus glossing over important differences between the two constructs (see Nicholls et al., 1986, for discussion of how ability and intelligence are different constructs). However despite the differences in their approaches to defining and assessing the construct of intelligence, both Nicholls (1984) and Dweck (e.g., Dweck & Elliott, 1983; Dweck & Leggett, 1988) have stressed how children's conceptions of ability and intelligence have important motivational consequences. Believing that ability is a capacity should increase the debilitating effects of failure on performance and motivation. Children holding this view likely believe they have little chance of improving after failure because their ability cannot be increased. In contrast, believing that effort can improve one's ability (an incremental view of intelligence) should protect against a learned helpless response to failure precisely because these children should continue to try even after failing. The work by Nicholls suggests that younger children may be less likely to believe ability is stable or fixed; however, Burhans and Dweck (1995) reviewed evidence showing that some young children already have doubts about their ability to do certain tasks, even if they are trying hard.

Development of Efficacy Beliefs

There has not been extensive research on the development of efficacy beliefs per se, although the work on ability beliefs and expectancies is directly relevant. Instead, research on children's self-efficacy has focused primarily on interventions to enhance the self-efficacy and school performance of low-achieving children (e.g., see Schunk, 1990, 1991, 1994). As valuable as this work is, more work is needed on the age-related differences in both efficacy beliefs and their relation to performance. Shell, Colvin, and Bruning (1995) found that 4th graders had lower self-efficacy beliefs for reading and writing than did 7th and 10th graders, and the 4th graders' efficacy beliefs were lower than 10th graders' beliefs (see Zimmerman & Martinez-Pons, 1990, for similar findings). That these findings are inconsistent with findings on children's competence beliefs probably reflects the self-efficacy measure used by Shell et al. because their instrument measured children's estimates of their efficacy in specific reading and writing skills, which should be higher among older children.

Bandura (1994) presented a comprehensive theoretical analysis of the development of self-efficacy. First, he proposed that experiences controlling proximal stimuli provide the earliest sense of personal agency. Through these experiences, infants learn that they can influence and control their environments. If adults do not provide infants with these experiences, they are not likely to develop a strong sense of personal agency. Second, because self-efficacy requires the understanding that the *self* produced an action and an outcome, Bandura (1994) argued that a more mature sense of self-efficacy should not emerge until children have at least a rudimentary self-concept and can recognize that they are distinct individuals, which happens sometime during the second year of life (see Harter, 1983; Ch. 9, this Volume). Through the preschool period, children are exposed to extensive performance information that should be crucial to their emerging sense of self-efficacy. However, just how useful such information is likely depends on the child's ability to integrate it across time, contexts, and domains. Since these cognitive capacities emerge gradually over the preschool and early elementary school years, young children's efficacy judgments should depend more on immediate and apparent outcomes than on systematic analysis of their performance history in similar situations (see Parsons & Ruble, 1972, 1977; Ruble, Parsons, & Ross, 1976; Shaklee & Tucker, 1979). More work is needed to understand how children become able to integrate diverse sources of information about their performances (e.g., information about their own performance, social comparison information, etc.) to develop a stable self-efficacy (cf., Ruble, 1983).

In his developmental analysis, Bandura (1994) also considered the influence of goals. He argued that proximal rather than distal goals help foster a sense of efficacy, because distal goals are too general and abstract (cf., Schunk, 1990, 1991). Bandura also hypothesized that children's interests derive from their efficacy beliefs, arguing that people become and stay interested in activities they can do and that provide them some satisfaction. This perspective is similar to the hypothesized relation of ability self-concepts to task value in the Eccles et al. expectancy-value model. Also like others (e.g., Csikszentmihalyi, 1988), Bandura hypothesized that challenging activities will be of most interest. In addition, reminiscent of Atkinson's claim that people with stronger tendencies to approach success (who likely have a stronger sense of efficacy as well) will be most motivated on tasks of intermediate difficulty, Bandura predicted that feeling *too* efficacious about an activity might decrease interest because the task will seem too easy and boring. Finally, he stressed the importance of school environments for developing and supporting a high sense of efficacy.

Development of Control Beliefs

In their review of studies of children primarily 8 to 9 years and older, Skinner and Connell (1986) concluded that there is an increase in perceptions of internal control as children get older. In contrast, based on a series of studies of children's understanding of skill versus chance events, Weisz (1984) concluded that the developmental sequence is more complex. The kindergarten children in these studies believed outcomes of chance tasks were due to effort; whereas the oldest groups (eighth graders and college students) believed that such outcomes were due to chance; fourth graders were confused about the distinction. Thus, in this work, the youngest children had such strong internal control beliefs that they believed they had control over totally chance based outcomes, suggesting that with age children came to understand better which kinds of events they can and cannot control. Similarly, Connell (1985) found a decrease in the endorsement of all three of his locus of control constructs (internal control, powerful others control, and unknown control) from Grades 3 through 9. Like Weisz's (1984) findings, the unknown belief results suggest

that older children have a clearer understanding of what controls achievement outcomes. However, the older children also rated the other two sources of control as less important, making interpretation of these findings difficult.

In discussing the ontogeny of control beliefs, E. Skinner (1990, 1995) stressed the importance of perceived contingency between individuals' actions and their successes. She also stressed that success itself fosters positive control beliefs and discussed how children's understanding of causality and explanations for outcomes likely change over age with these beliefs, particularly the means-ends beliefs, becoming more differentiated as children get older. What is similar across all ages is the importance of fulfilling the need for competence.

Skinner has examined age differences in both the structure and the mean levels of means-ends beliefs (see E. Skinner, 1995). The factor structure of these beliefs is more differentiated among older children. Among the 7- and 8-year-olds, two factors emerged with the unknown items loading on one factor, and the effort, luck, ability, and powerful other items loading on a second factor. Among 9- and 10-year-olds, this second factor divided into internal (ability and effort) and external (luck and powerful others) components. Among 11- and 12-year-olds, there were four factors: unknown, external, ability, and effort. Based on these factor analytic results, Skinner suggested that different aspects of control should influence children's behavior at different ages, with unknown control being one of the first predictors, and perceived ability emerging much later. This hypothesis has yet to be tested.

She also found the largest mean-level differences on some of the means-ends beliefs. At all ages between 7 and 12, children believe effort is the most effective means. In contrast, older children are much less likely to believe that luck is an effective means than younger children. As in Connell (1985), belief in the relevance of unknown control and powerful others also decreased across age levels.

In summary, there are numerous changes in children's competence and control beliefs including structural change, mean-level change, and change in children's understanding of the constructs. These changes pose interesting theoretical and methodological problems for researchers trying to measure these constructs in different-aged children.

Development of Subjective Task Values

Eccles, Wigfield, and their colleagues examined age-related changes in both the structure and mean levels of children's valuing of different activities. In Eccles, Wigfield, et al. (1993), Eccles and Wigfield (1995) and Wigfield, Eccles, Yoon, et al. (1996), children's competence-expectancy beliefs and subjective values *within* the domains of math, reading, and sports formed distinct factors at all grade levels from 1st through 12th. Thus, even during the very early elementary grades children appear to have distinct beliefs about what they are *good* at and what they *value*. The distinction between components of subjective task value appear to differentiate more gradually (Eccles, Wigfield, et al., 1993; Eccles & Wigfield, 1995; Wigfield, Eccles, Yoon, et al., 1996). Children in early elementary school differentiate task value into two components: interest and utility/importance. In contrast, children in Grades 5 through 12 differentiate task value into the three major subcomponents (attainment value/personal importance, interest, and utility value) outlined by Eccles-Parsons et al. (1983). These results suggest that the interest component differentiates out first, followed later by the distinction between utility and attainment value.

As with competence-related beliefs, studies generally show age-related declines in children's valuing of certain academic tasks (e.g., Eccles et al., 1983, 1993b; see Eccles & Midgley, 1989; Wigfield & Eccles, 1992). In a longitudinal analysis of elementary school children, beliefs about the usefulness and importance of math, reading, instrumental music, and sports activities decreased over time (Wigfield, Eccles, Yoon, et al., 1996). In contrast, the children's interest decreased only for reading and instrumental music, not for either math or sports. The decline in valuing of math continues through high school (Eccles, 1984; Eccles, Midgley, et al., 1984). Eccles et al. (1989) and Wigfield et al. (1991) also found that children's ratings of both the importance of math and English and their liking of these school subjects decreased across the transition to junior high school. In math, students' importance ratings continued to decline across seventh grade, whereas their importance ratings of English increased somewhat during seventh grade. It is important to examine the components of task value separately if we are to understand the development of achievement-related task values.

Researchers have not addressed changes in children's understandings of the components of task value identified by Eccles-Parsons et al. (1983), although there likely are age-related differences in these understandings. An 8-year-old is likely to have a different sense of what it means for a task to be "useful" than an 11-year-old does. Further, it also is likely that there are differences across age in

which components of achievement values are most dominant. Wigfield and Eccles (1992) suggested that interest may be especially salient during the early elementary school grades with young children's activity choices being most directly related to their interests. If, as Nagy (1912) proposed, young children's interests shift as rapidly as their attention spans, they are likely to try many different activities for a short time each before developing a more stable opinion regarding which activities they enjoy the most. As children get older, the perceived utility and personal importance of different tasks likely become more salient, particularly as they develop more stable self-schemas and long-range goals and plans. These developmental predictions need to be tested.

A related developmental question is how children's developing competence beliefs relate to their developing subjective task values. According to both the Eccles (Eccles-Parsons et al., 1983) model and Bandura's (1994) self-efficacy theory, ability self-concepts should influence the development of task values. In support of this prediction, Mac Iver, Stipek, and Daniels (1991) found that changes in junior high school students' competence beliefs over a semester predicted change in children's interests much more strongly than vice versa. Does the same causal ordering occur in younger children? Bandura (1994) argued that interests emerge out of one's sense of self-efficacy and that children should be more interested in challenging than in easy tasks. Taking a more developmental perspective, Wigfield (1994) proposed that initially young children's competence and task value beliefs are likely to be relatively independent of each other. This independence would mean that young children may be more likely than older children to pursue activities they are interested in regardless of how good or bad they think they are at the activity. Over time, particularly in the achievement domains, children may begin to attach more value to those activities they are good at for several reasons: First, through processes associated with classical conditioning, the positive affect one experiences when one does well should become attached to the activities yielding success (see Eccles, 1984). Second, lowering the value one attaches to activities that one is having difficulty with is an effective way to maintain a positive global sense of efficacy and self-esteem (see Eccles, 1984; Eccles, Wigfield, & Blumenfeld, 1984; Harter, 1990). Thus, at some point the two kinds of beliefs should become more positively related to one another. In partial support of this view, Wigfield, Eccles, Yoon, et al. (1996) found that relations between children's competence beliefs and subjective values in different domains become stronger over age as children move through elementary school. The causal direction of this relation needs to be tested.

Development of Interest and Intrinsic Motivation

The theories following the early approaches to interest development were based primarily on empirical studies (for an overview, see Todt, 1990). Most noteworthy is the work of Tyler (1955), Roe and Siegelman (1964), Kohlberg (1966), Travers (1978), and Gottfredson (1981). Based on Piaget's (1948) theory, (Travis 1978) analyzed the earliest phase of interest development. He assumed that only "universal" interests would be evident in very young children, for example, the infant's search for structure. Later, depending on the general cognitive development of the child, these universal interests should become more differentiated and individualized. According to Roe and Siegelman (1964), the earliest differentiation occurs between interest in the world of physical objects versus interest in world of people. Todt (1990) argued that this early differentiation eventually leads to individual differences in interests in the social versus the natural sciences.

The next phase of interest development—between 3 and 8 years of age—should be strongly influenced by gender-role acquisition. According to Kohlberg (1966), the acquisition of gender identity leads to gender-specific behaviors, attitudes, and interests. Children strive to behave consistently with their gender identity and, thus, evaluate activities or objects consistent with their gender identity more positively than other activities or objects. As a consequence, boys and girls develop gender-role stereotyped interests (see Ruble & Martin, Ch. 14, this Volume; Eccles, 1987).

Similarly, in her theory of occupational aspirations, Gottfredson (1981) assumed that the development of interests depends on the development of one's self-concept, particularly those dimensions of the self-concept linked to gender, social class, and ability. Initially, gender is the primary dimension. At the next stage (ages 9–13), the emerging self-concept is assumed to be linked more directly to social group affiliation and cognitive ability, leading to occupational interests consistent with one's social class and ability self-concepts. The final stage (occurring after age 13 or 14) is characterized by an orientation to the internal, unique self leading to more differentiated and individualized vocational interest, based on abstract concepts of self (e.g., of personality). Thus, the development of vocational

interests is a process of continuous elimination of interests that do not fit the self-concepts of one's gender, social group affiliation, ability, and then personal identity (Todt, 1990). This process is assumed to depend mainly on the general cognitive development of the child or adolescent.

It is also likely that changing needs or motives across the life span can influence the development of interests. A good example is the increasing interest in biology and psychology during puberty. The need to know oneself and to cope with rapid bodily and psychological changes seems to foster interest in biological and psychological domains of knowledge (Todt, 1990) at this age.

Consistent with studies of American children (e.g., Eccles, Wigfield, et al., 1993; Harter, 1981; Wigfield et al., 1991), several European researchers have found that interest and intrinsic motivation in different subject areas decline across the school years. This is especially true for the natural sciences and mathematics (e.g., Hedelin & Sjoberg, 1989; Helmke, 1993; Lehrke, Hoffmann, & Gardner, 1985; Oldfather & McLaughlin, 1993) and particularly during the early adolescent years. Pekrun (1993) found that intrinsic motivation stabilized after eighth grade.

Baumert (1995) argued that the decline in school-related interests during adolescence reflects a more general developmental process in which the adolescents discover new fields of experience that lead to new interests and reduce the dominant influence of school (cf., Eder, 1992). In contrast, other researchers have suggested that changes in a number of instructional variables such as clarity of presentation, monitoring of what happens in the classroom, supportive behavior, cognitively stimulating experiences, self-concept of the teacher (educator vs. scientist), and achievement pressure may contribute to declining interest in school mathematics and science (e.g., Eccles & Midgley, 1989).

Development of Children's Goals

Little work has focused on how children's goals develop. Although Nicholls documented that both task goals and ego goals are evident by second grade (e.g., Nicholls et al., 1990), he also suggested that an ego goal orientation becomes more prominent for many children as they get older due to both developmental changes in their conceptions of ability and systematic changes in school context. Dweck and her colleagues (e.g., Dweck & Leggett, 1988) also predicted that performance goals should become more prominent with age as more children view intelligence as stable (entity view), because an entity view of intelligence is linked to performance goals. In contrast, Meece and Miller (1996) found that both children's learning and performance goals decreased across third to fourth grade, while their work avoidance goals increased. More work charting the development of children's goal orientations is needed.

The relations of goals to performance should also change with age as the meaning of ability and effort changes. In a series of studies looking at how competitive and noncompetitive conditions, and task and ego-focused conditions, influence preschool and elementary school-age children's interests, motivation, and self-evaluations, Butler identified several developmental changes: First, competition decreased children's subsequent interest in a task only among children who had also developed a social-comparative sense of ability (Butler, 1989a, 1990). Competition also increased older, but not younger, children's tendency to engage in social comparison (Butler, 1989a, 1989b). Second, although children of all ages engaged in social comparison, younger children seemed to be doing so more for task mastery reasons, whereas older children did so to assess their abilities (Butler, 1989b). Third, whereas, 5-, 7-, and 10-year-old children's self-evaluations were equally accurate under mastery conditions, under competitive conditions 5- and 7-year-olds inflated their performance self-evaluations more than 10-year-olds (Butler, 1990). Apparently the influence of situationally-induced performance goals on children's self-evaluations depends on the children's age and cognitive sophistication. Finally, Butler and Ruzany (1993) found that patterns of socialization influence both ability assessments and reasons for social comparison: Kibbutz-raised Israeli children adopted a normative ability concept at a younger age than city-reared Israeli children. However, only the urban children's reasons for engaging in social comparison were influenced by their concept of ability: Once they adopted a normative view, they used social comparison to compare their abilities with those of other children. In contrast, the kibbutz children used social comparison primarily for mastery reasons, regardless of their conception of ability.

Developmental studies of multiple goals are badly needed. Neither Wentzel or Ford, the major theorists in this area, have done such work. Thus, we know very little about how these kinds of multiple goals emerge during childhood and whether the relation of these different goals to performance varies across age and context.

Development of Self-Regulation and Volition

Before reviewing the work on self-regulatory and volitional processes in achievement settings, two general developmental points need to be made. First, children's ability to self-regulate increases dramatically across the toddler period (Bullock & Lutkenhaus, 1988) due to increases in ability to focus on both the outcomes of their behaviors and the behaviors themselves (see Mischel & Mischel, 1983), increases in understanding of the self as a causal agent (Bandura, 1994; Jennings, 1991; E. Skinner, 1995), and increases in both the ability and desire to evaluate the success or failure of one's achievement efforts (Heckhausen, 1984, 1987; Stipek et al., 1992). Second, parents play a critical role in the extent to which children regulate their own behavior. Both the ways parents define and organize tasks for the children and the control strategies they use have a big impact on very young children's ability to regulate their behavior (e.g., use of indirect commands, verbal controls, and reasoning facilitates the early development of self-regulation, Kopp, 1991).

Turning to self-regulated learning, Zimmerman and Bonner (in press) recently proposed a four-step developmental sequence. Children first learn effective strategies by observing successful models. Second, children imitate the strategies, following what the model did relatively closely. Third, they learn to use the strategies apart from the model; Zimmerman and Bonner called this self-controlled learning. Although children do the strategies on their own, they still are dependent on the model. Finally, children begin to both use the strategies in different situations and tailor them to their own purposes. This hypothesized sequence has yet to be tested and there is very little developmental research on the kinds of self-regulatory strategies and processes Zimmerman and his colleagues have discussed (e.g., Zimmerman & Martinez-Pons, 1986). Zimmerman and Martinez-Pons (1990) found a complex pattern of differences across age in use of these strategies by older children and adolescents. Researchers have not yet systematically tested how strategies, goals, and self-efficacy interact to influence the regulation of learning in children of different ages. Additionally, it would be useful to compare Zimmerman and Bonner's model with Deci and Ryan's discussion of the development of internalized regulation.

In contrast, there is some developmental work on volitional strategies. For example, Kuhl and Kraska (1989), in German and Mexican elementary school-age children, found increases in children's ability to use all the strategies except for emotion control. But more developmental work is needed here as well.

The Development and Remediation of Motivational Problems

Many children begin to experience motivational problems during the school years. These problems include anxiety, lack of confidence in their abilities, and the belief that they cannot control their own achievement outcomes. Two motivational problems have received extensive research attention—test anxiety and learned helplessness.

Anxiety

Test anxiety is estimated to interfere with the learning and performance, particularly in evaluative situations, of as many as 10 million children and adolescents in the United States (Hill & Wigfield, 1984; Tobias, 1985; Wigfield & Eccles, 1989; Wigfield & Meece, 1988). Much work has focused on the cognitive/worry aspect of anxiety because worry is more strongly and negatively related to performance than emotionality (e.g., Geen, 1980; Morris, Davis, & Hutchings, 1981; I. G. Sarason, 1980; Zatz & Chassin, 1983, 1985). For example, Wine (1971, 1980) suggested that worry interferes with cognitive processing and the maintenance of attention to the task at hand because highly anxious individuals divide their attention between the task and their negative ruminations about the task and the likelihood they will do poorly on it. This divided attention leads to poorer performance (see also Benjamin, McKeachie, & Lin, 1987; Tobias, 1985). Furthermore, introducing tasks, tests, or assignments as tests of ability heightens the worry of highly anxious individuals (see Wigfield & Eccles, 1989).

Researchers (e.g., Dusek, 1980; Hill & Wigfield, 1984; Wigfield & Eccles, 1989) have postulated that high trait-anxiety emerges when parents have overly high expectations and put too much pressure on their children, but few studies have tested this proposition. Anxiety continues to develop across the school years as children face more frequent evaluation, social comparison, and (for some) experiences of failure; to the extent that schools emphasize these characteristics, both state and trait-anxiety become a problem for more children (Hill & Wigfield, 1984; Phillips, Pitcher, Worcham, & Miller, 1980). Wigfield and

Eccles (1989) proposed that anxiety initially may be characterized more by emotionality, but as children develop cognitively, the worry aspect of anxiety should become increasingly salient. This proposal needs to be tested, but we do know that worry is a major component of the thought processes of highly anxious fifth and sixth graders (Freedman-Doan, 1994; Zatz & Chassin, 1983, 1985).

With a few important exceptions (e.g., Silverman, La Greca, & Wasserstein, 1995; Vasey & Daliedon, 1994), work on anxiety has diminished over the past decade for two reasons: (a) increased focus on cold cognitions such as ability and efficacy beliefs, and achievement goals; and (b) the argument that anxiety is simply the flip side of negative judgments about one's ability and efficacy. For example, Nicholls (1976) concluded that many items on the TASC refer to negative ability beliefs. When he separated the ability and anxiety items, the ability items related more strongly to indicators of achievement than the anxiety items (cf., Bandura, 1994; Meece et al., 1990). But the apparent similarity of anxiety and negative ability beliefs likely reflects a focus in current tests on the cognitive aspects of anxiety. Although this component is critical, a consideration of physiological/emotional aspects of anxiety, and possibly other motivational constructs, is also needed, particularly as we learn more and more about biological influences (e.g., temperament and level of arousal) on thought and behavior. It is also likely that the emotional component of anxiety will have a more independent influence on performance than the worry component. Nonetheless, work on the worry component is still important because this component provides a process mechanism explanation for the negative effects of low confidence on performance.

Anxiety Intervention Programs. Many programs have been developed to reduce anxiety (see Deffenbacher, 1980; Denny, 1980; Hill, 1980; Wigfield & Eccles, 1989). Earlier intervention programs, emphasizing the emotionality aspect of anxiety, focused on relaxation and desensitization techniques. Although these programs reduced anxiety, they did not always lead to improved performance, and the studies had serious methodological flaws. Anxiety intervention programs linked to the worry aspect of anxiety focus on changing the negative, self-deprecating thoughts of anxious individuals and replacing them with more positive, task-focused thoughts (e.g., see Denny, 1980; Meichenbaum & Butler, 1980). These programs have been more successful both in lowering anxiety and improving performance.

An important issue needing more attention is how to tailor programs for children of different ages, particularly during elementary school (see Wigfield & Eccles, 1989). Further, because children's anxiety depends so much on the kinds of evaluations they experience in school, changes in school testing practices could help reduce anxiety (see Hill & Wigfield, 1984).

Learned Helplessness

"Learned helplessness . . . exists when an individual perceives the termination of failure to be independent of his responses" (Dweck & Goetz, 1978, p. 157). It is related to individuals' attributions: Helpless individuals are more likely to attribute their failures to uncontrollable factors, such as lack of ability, and their successes to unstable factors (see Dweck & Goetz, 1978). Dweck and her colleagues have documented several differences between helpless and more mastery-oriented children's responses to failure (see Dweck & Elliott, 1983; Dweck & Leggett, 1988): When confronted by difficulty (or failure), mastery-oriented children persist, stay focused on the task, and sometimes even use more sophisticated strategies. In contrast, helpless children's performance deteriorates, they ruminate about their difficulties, and they often begin to attribute their failures to lack of ability. Further, helpless children adopt the "entity" view that their intelligence is fixed, whereas mastery-oriented children adopt the incremental view of intelligence.

Because young children have limited cognitive abilities, confuse different attributional categories (particularly ability and effort), and have trouble distinguishing between contingent and noncontingent events (making it difficult for them to know which outcomes they do and do not control, Weisz, 1984), it is likely that both learned helpless behaviors and the concomitant detrimental effects will show a developmental pattern. In support of this hypothesis, Rholes, Blackwell, Jordan, and Walters (1980) found that younger children did not show the same decrements in performance in response to failure as some older children do. However, recent work (see Burhans & Dweck, 1995) shows that some young (5- and 6-year-old) children respond quite negatively to failure feedback, judging themselves to be bad people (cf., Stipek et al., 1992). Burhans and Dweck proposed that young children's helplessness is based more on their judgments that their worth as persons is contingent

on their performance than on having a mature entity view of intelligence. Fincham and Cain (1986) stressed the need to examine how children's understanding of contingencies, estimations of their own competence, and attributions for their outcomes work together in determining children's evaluations of their achievement outcomes. This kind of integrative work on learned helplessness has not yet been undertaken. However, the work by Burhans and Dweck suggests an important developmental modification to Dweck and Legget's model of learned helpless versus mastery-oriented motivational styles.

What else influences the emergence of individual differences in learned helplessness in children? Dweck and Goetz (1978) stressed the importance of whether children receive feedback that their failures are due to lack of ability or lack of skills and effort from parents and teachers. In support, Hokoda and Fincham (1995) found that mothers of helpless third grade children (compared with mothers of mastery-oriented children) gave fewer positive affective comments to their children, were more likely to respond to their children's lack of confidence in their ability by telling them to quit, were less responsive to their children's bids for help, and did not focus them on mastery goals. Dweck and Goetz argued further that girls may be more likely than boys to receive negative ability feedback in elementary school classrooms (see Dweck, Davidson, Nelson, & Enna, 1978), and so may be more likely to develop helplessness. Although some other researchers have not replicated Dweck et al.'s (1978) classroom findings regarding sex differences in feedback to children (e.g., Eccles-Parsons, Kaczala, & Meece, et al., 1982), it is likely that children who receive feedback that their failures are due to lack of ability will be more prone to develop helplessness.

Alleviating Learned Helplessness. Various training techniques (including operant conditioning and providing specific attributional feedback) have been used successfully to change children's failure attributions from lack of ability to lack of effort, improving their task persistence, and performance (e.g., Andrews & Debus, 1978; Dweck, 1975; Forsterling, 1985; Fowler & Peterson, 1981). Two problems with these approaches have been noted. First, what if the child is already trying very hard? Then the attribution retraining may be counterproductive. Second, telling children to "try harder" without providing specific strategies to improve performance is likely to backfire if the children increase their efforts and still do not succeed. Therefore, some researchers advocate using strategy retraining in combination with attribution retraining to provide low achieving and/or learned helpless children with specific ways to remedy their achievement problems. Borkowski and his colleagues, have shown that a combined program of strategy instruction and attribution retraining is more effective than strategy instruction alone in increasing reading motivation and performance in underachieving students (e.g., Borkowski & Muthukrisna 1995; Borkowski, Weyhing, & Carr, 1988; Paris & Byrnes, 1989; Pressley & El-Dinary, 1993; Weinstein & Mayer, 1986).

Summary

Work on anxiety and helplessness shows that some children suffer from motivational problems that can debilitate their performance in achievement situations. Although most of the work in developmental and educational psychology has focused on these two problems, there likely are other important motivational problems as well. In particular, some children may set maladaptive achievement goals, others may have difficulties regulating their achievement behaviors, and still others come to devalue achievement. More comprehensive work is needed on these kinds of motivational problems and how they affect children's achievement. Self-efficacy training provides an example of such work.

Self-Efficacy Training. Schunk and his colleagues have done several studies designed to improve elementary school-age children's (often low-achieving children) math, reading, and writing performance through skill training, enhancement of self-efficacy, attribution retraining, and training in how to set goals (e.g., Schunk, 1982, 1983; Schunk & Rice, 1987, 1989; Schunk & Schwartz, 1993). Modeling is an important aspect of this training (see Schunk, 1991, 1994). A number of findings have emerged from this work. First, the training increases both children's performance and their sense of self-efficacy (e.g., Schunk & Rice, 1989). Second, attributing children's success to ability has a stronger impact on their self-efficacy than does either effort feedback, or ability and effort feedback (e.g., Schunk, 1982, 1983). However, the effects of this kind of attributional feedback vary across different groups of children (see Schunk, 1994). Third, training children to set proximal, specific, and somewhat challenging goals enhances both their self-efficacy and performance. Fourth, training that emphasizes process goals (analogous to task

or learning goals) increases self-efficacy and skills in writing more than an emphasis on product (ego) goals (e.g., Schunk & Schwartz, 1993); however, this is not true for reading (Schunk & Rice, 1989). Finally, like the work of Borkowski and his colleagues, Schunk and his colleagues have found that combining strategy training, goal emphases, and feedback to show children how their learning of strategies related to their performance has some of the strongest effects on subsequent self-efficacy and skill development.

This work now needs to be extended to children of different ages to determine whether the strategy instruction and motivation enhancement techniques need to be modified for younger and older children. Further, work is needed on developing programs that integrate various approaches, particularly those approaches associated with self-efficacy, goal setting, and self-regulation. More broadly, however, as valuable as these individual programs are, they are likely to have little lasting benefit if home and school environments do not facilitate and support the changes. Therefore, some researchers have turned to changing school and classroom environments to facilitate motivation, rather than changing individual children. This work is discussed later.

Gender Differences in Motivation

Despite efforts to increase the participation of women in advanced educational training and high status professional fields, women are still underrepresented in many fields, particularly those associated with technology, physics, and applied mathematics and at the highest levels of almost all fields (see Eccles, 1989). Efforts to understand these persistent gender differences in achievement patterns have produced a proliferation of theories and research. Eccles and her colleagues originally proposed their expectancy-value model of achievement choices (see Figure 15.1) as an effort to organize this disparate research into a comprehensive theoretical framework (see Eccles-Parsons et al., 1983; Meece et al., 1982). For example, consider gender differences in high school course enrollment: This model predicts that people will be most likely to enroll in courses that they think they will do well in and that have high task value for them. Expectations for success depend on the confidence the individual has in his or her intellectual abilities and on the individual's estimations of the difficulty of the course. These beliefs have been shaped by the individual's experiences with the subject matter, by the individual's subjective interpretation of those experiences (e.g., does the person think that his or her successes are a consequence of high ability or lots of hard work?), and by cultural stereotypes regarding both the difficulty of the course and the distribution of relevant talents across various subgroups. The value of a particular course is also influenced by several factors including the following: Does the person like doing the subject material? How well does the course fit with the individual's self-concepts, goals, and values? Is the course seen as instrumental in meeting one of the individual's long- or short-range goals? Have parents or counselors insisted that the individual take the course or, conversely, have other people tried to discourage the individual from taking the course? Is the person worried about failing the course? Does taking the course interfere with other goals and values activities? Existing evidence, reviewed next, supports the conclusion that gender-role socialization and internalization are likely to lead to gender differences in each of these broad motivational categories, which, in turn, likely contribute to the underrepresentation of women in many occupations and activities oriented toward high achievement (see Eccles, 1989, 1994).

Gender Differences in Competence-Related Beliefs, Causal Attributions, and Control Beliefs

Gender differences, often favoring males, in competence beliefs are frequently reported, particularly in gender-role stereotyped domains and on novel tasks. For example, gifted and high-achieving females are more likely to underestimate both their ability level and their class standing (Frome & Eccles, 1995; Strauss & Subotnik, 1991; Terman, 1926). Crandall (1969) concluded that such gender differences in general expectations for success reflect the tendency for girls to underestimate and boys to overestimate their likely future performance. However, these differences are not always found (e.g., Dauber & Benbow, 1990; Schunk & Lilly, 1982) and, when found, are generally quite small (Marsh, 1989).

Furthermore, the magnitude and direction of these gender difference depend on the gender-role stereotyping of the activity. For example, boys hold higher competence beliefs than girls for math and sports, even after all relevant skill-level differences are controlled; in contrast, girls have higher competence beliefs than boys for reading, English, and social activities; and the magnitude of these differences often increases following puberty (Eccles, 1984; Eccles et al., 1989; Eccles, Wigfield, et al., 1993; Eccles-Parsons

., 1983; Harter, 1982; Huston, 1983; Marsh, 1989; h, Craven, & Debus, 1991; Wigfield et al., 1991). Fur- the extent to which children endorse the cultural otypes regarding which sex is likely to be most talented ch domain predicts the extent to which girls and boys rt their own ability self-concepts and expectations in ender-stereotypic direction (Early, Belansky, & Eccles, ; Eccles & Harold, 1991; Nash, 1979).

ndings regarding gender differences in attributions lso mixed. Some researchers (e.g., Dweck & Goetz, ; Ruble & Martin, Ch. 14, this Volume; Stipek & inski, 1991) have found that girls are less likely than to attribute success to ability and more likely to at- te failure to lack of ability. Others have found that this rn depends on the kind of task used: It occurs more unfamiliar tasks or stereotypically masculine achieve- tasks and sometimes does not occur at all (see Eccles- ons, 1983; Eccles-Parsons, Meece, et al., 1982; Yee & es, 1988).

ender differences are also sometimes found for locus ntrol. In Crandall et al. (1965), the girls tended to have er internal locus of responsibility scores for both posi- and negative achievement events and the older girls had r internality for negative events than did the younger . The boys' internal locus of responsibility scores for ive events decreased from 10th to 12th grade. These developmental patterns resulted in the older girls ac- ing more blame for negative events than the older (cf., Dweck & Goetz, 1978; Dweck & Repucci, 1973). larly, Connell (1985) found that boys attributed their omes more than girls to either powerful others or un- n causes in both the cognitive and social domains.

his greater propensity for girls to take personal re- sibility for their failures, coupled with their more ent attribution of failure to lack of ability (a stable, ntrollable cause) has been interpreted as evidence of ter learned helplessness in females (see Dweck & t, 1980). However, evidence for gender differences on vioral indicators of learned helplessness is quite d. In most studies of underachievers, boys outnumber 2 to 1 (see McCall, Evahn, & Kratzer, 1992). Simi- , boys are more likely than girls to be referred by their hers for motivational problems and are more likely to out of school before completing high school. More istent evidence exists that females, compared with s, select easier laboratory tasks, avoid challenging and petitive situations, lower their expectations more fol- ng failure, shift more quickly to a different college major when their grades begin to drop, and perform more poorly than they are capable of on difficult, timed tests (see Dweck & Licht, 1980; Parsons & Ruble, 1977; Ruble & Martin, Ch. 14, this Volume; Spencer & Steele, 1995).

Gender differences also emerge regularly in studies of anxiety (e.g., Douglas & Rice, 1979; Hill & Sarason, 1966; Manley & Rosemier, 1972; Meece et al., 1990). However, Hill and Sarason suggested that boys may be more defensive than girls about admitting anxiety on questionnaires. In support of this suggestion, Lord, Eccles, and McCarthy (1994) found that test anxiety was a more significant predictor of poor adjustment to junior high school for boys even though the girls reported higher mean levels of anxiety.

Closely related to the anxiety findings, Spencer and Steele (1995) documented another motivational mechanism likely to undermine females' performance on difficult timed tests: stereotype vulnerability. They hypothesized that members of social groups (e.g., females) stereotyped as being less competent in a particular subject area (e.g., math) will become anxious when asked to do difficult problems because they are afraid the stereotype might be true of them. This vulnerability is also likely to make them respond more negatively to failure feedback, leading to lowering their expectations and their confidence in their ability to succeed. They gave college students a difficult math test under two conditions: (a) after being told that males typically do better on this test, or (b) after being told that males and females typically do about the same. The women scored lower than the males only in the first condition. Furthermore, the manipulation's effect was mediated by variations across condition in reported anxiety.

In summary, when gender differences emerge on competence-related measures of motivation, they are both consistent with gender-role stereotypes and are likely mediators of gender differences in various types of achievement-related behaviors and choices. But more work is needed before we will understand the reasons behind the inconsistency in findings across studies.

Gender Differences in Achievement Values

Eccles, Wigfield, and their colleagues have found gender-role stereotypic differences in both children's and adolescents' valuing of sports, social activities, and English (e.g., Eccles et al., 1989; Eccles, Wigfield, et al., 1993; Stein & Bailey, 1973; Wigfield et al., 1991). In Eccles, Wigfield, et al. (1993), girls also valued instrumental music more than boys. Interestingly, gender differences in the value of math did not emerge until high school (Eccles, 1984).

Although it is encouraging that boys and girls value math equally during elementary and middle school, the fact that adolescent girls have less positive views of both their math ability and the value of math is problematic because these differences underlie girls' lower probability of taking optional advanced level math and physical science courses and entering math-related scientific and engineering fields (see Eccles, 1994).

Sex differences have also been found on many of the psychological processes proposed by Eccles and her colleagues to underlie sex differences in subjective task value. For example, Eccles-Parsons et al. (1983) predicted that the attainment value of particular tasks would be linked to (a) conceptions of one's personality and capabilities; (b) long-range goals and plans; (c) schemas regarding the proper roles of men and women; (d) instrumental and terminal values (Rokeach, 1979); (e) ideal images of what one should be like; and (f) social scripts regarding proper behavior in many situations. If gender-role socialization leads males and females to differ on these core self- and role-related beliefs, then related activities will have differential value for males and females. In support, in a study of the link between personal values and college major, Dunteman, Wisenbaker, and Taylor (1978) identified two sets of values that both predicted major and differentiated the sexes: the first set (labeled thing-orientation) reflected an interest in manipulating objects and understanding the physical world; the second set (labeled person-orientation) reflected an interest in understanding human social interaction and a concern with helping people. Students with high thing-orientation and low person-orientation were more likely than other students to select a math or a science major. Not surprisingly, the females were more likely than the males to major in something other than math or science because of their higher person-oriented values. Similarly, the young women in Jozefowicz, Eccles, and Barber (1993) placed more value than the young men on female-stereotyped career-related skills and interests such as doing work that directly helps people and meshes well with child-rearing responsibilities. These values, along with ability self-concepts, predicted the gender-stereotyped career plans of both males and females (see Eccles & Harold, 1992, for review of the gender-role stereotypic patterns for personal values, occupational values, and personality traits).

Finally, the role of conflict between gender roles and achievement in gifted girls' lives is well illustrated by a recent ethnographic study of a group of gifted schoolgirls by Bell (1989). She interviewed a multiethnic group of third- to sixth-grade gifted girls in an urban elementary school regarding the barriers they perceived to their achievement in school. Five gender-role related themes emerged with great regularity: (a) concern about hurting someone else's feelings by winning in achievement contests; (b) concern about seeming to be a braggart by expressing pride in one's own accomplishments; (c) overreaction to nonsuccess experiences (apparently not being the very best is very painful to these girls); (d) concern over their physical appearance and what it takes to be beautiful; and (e) concern with being overly aggressive in terms of getting the teacher's attention. In each case, the gifted girls felt caught between doing their best and either appearing feminine or doing the caring thing.

Disidentification

Earlier, we discussed the relationship between values and competence-related beliefs. Drawing on the writings of William James (1892/1963), we suggested that children, in an effort to maintain self-esteem, will lower the value they attach to particular activities or subject areas if they lack confidence in these areas (see also Harter, 1990). Spencer and Steele (1995) suggested a similar phenomenon related to stereotype vulnerability. They hypothesized that women will disidentify with those subject areas in which females are stereotyped as less competent than males. By disidentifying with these areas, the women will not only lower the value they attach to these subject areas, they will also be less likely to experience pride and positive affect when they are doing well in these subjects. Consequently, these subjects should become irrelevant to their self-esteem. These hypotheses remain to be tested.

Racial and Ethnic Group Differences in Motivation

As is the case in many areas of psychology (see Graham, 1992), less is known about the motivation of children from different racial and ethnic groups. However, work in this area is growing quickly, with much of it focusing on the academic achievement difficulties of many African American children (see Berry & Asamen, 1989; Hare, 1985; Slaughter-Defoe, Nakagawa, Takanishi, & Johnson, 1990). Work has also focused on other minority groups within the United States and on recent immigrant populations, some of whom are doing much better in school than both European American middle-class children and third- and fourth-generation members of their same national heritage

(e.g., Chen & Stevenson, 1995; Kao & Tienda 1995; Slaughter-Defoe et al., 1990).

Ethnic Group Differences in Children's Competence, Control, and Attribution Beliefs

Graham (1994) reviewed the literature on differences between African American and European American students on such motivational constructs as need for achievement, locus of control, achievement attributions, and ability beliefs and expectancies. She concluded that the differences are not very large. Further, she argued that many existing studies have not adequately distinguished between race and socioeconomic status, making it difficult to interpret any differences that emerge. Cooper and Dorr (1995) did a meta-analysis of some of the same studies reviewed by Graham to compare more narrative and more quantitative reviews. Although there were some important points of agreement across the two reviews, Cooper and Dorr concluded that there is evidence suggesting race differences in need for achievement favoring European Americans, especially in low-SES and younger samples.

In their study of educational opportunity, Coleman et al. (1966) reported that perceived control was an important predictor of African American children's school achievement. Graham (1994) found some evidence that African Americans are more external than European Americans. However, she also noted that studies looking at relations of locus of control to various achievement outcomes have not shown this greater externality to be a problem; indeed, in some studies, greater externality is associated with higher achievement among African Americans. In interpreting such findings, Gurin and Epps (1974) suggested that being external for failure in a racist context is likely to be both psychologically protective and accurate.

Research on competence beliefs and expectancies has revealed more optimism among African American children than among European American children, even when the European American children are achieving higher marks (e.g., Stevenson, Chen, & Uttal, 1990). But more importantly, in Stevenson, Chen, and Uttal (1990) the European American children's ratings of their ability related significantly to their performance, whereas the African American children's did not. Graham (1994) suggested the following explanations: (a) African American and European American children may use different social comparison groups to help judge their own abilities; and (b) African American children may say they are doing well to protect their general self-esteem, and for the same reason may also devalue or disidentify academic activities at which they do poorly. However, neither of these explanations has been adequately tested. If African American children's competence-related beliefs do not predict their school performance, then questions must be raised about how relevant the theories considered in this chapter are for understanding these children's motivation.

Ethnic Group Differences in Achievement Values and Goals

There are few ethnic comparative studies specifically focused on the kinds of achievement values measured by Eccles, Wigfield, and their colleagues, or of the kinds of goals measured by Nicholls, Dweck, Ames, and Wentzel. Researchers studying minority children's achievement values have focused instead on the broader valuing of school by minority children and their parents. In general, these researchers find that minority children and parents highly value school (particularly during the elementary school years), and have high educational aspirations for their children (e.g., Stevenson, Chen, & Uttal, 1990). However, the many difficulties associated with poverty (see Duncan, Brooks-Gunn, & Klevbanov, 1994; Huston, McLoyd, & Coll, 1994; McLoyd, 1990) make these educational aspirations difficult to attain. It is important for researchers to extend this work to more specific value-related constructs.

Ethnicity and Motivation at the Interface between Expectancies and Values

Researchers interested in ethnic and racial differences in achievement have proposed models linking social roles, competence-related beliefs, and values. For example, Steele (1992) proposed stereotype vulnerability and disidentification to help explain the underachievement of African American students: Confronted throughout their school career with mixed messages about their competence and their potential and with the widespread negative cultural stereotypes about their academic potential and motivation, African American students should find it difficult to concentrate fully on their school work due to the anxiety induced by their stereotype vulnerability (for support see Steele & Aronson, 1995). In turn, to protect their self-esteem, they should disidentify with academic achievement leading to both a lowering of the value they attach to academic achievement and a detachment of their self-esteem from both positive and the negative academic experiences. In support, several researchers have found that academic self-concept of ability is less predictive of general self-esteem for some African American children (Bledsoe, 1967; Winston, Eccles, & Senior, in press).

Fordham and Ogbu (1986) have made a similar argument linking African American students' perception of limited future job opportunities to lowered academic motivation: Since society and schools give African American youth the dual message that academic achievement is unlikely to lead to positive adult outcomes for them and that they are not valued by the system, some of these students may create an oppositional culture that rejects the value of academic achievement. Ogbu (1992) discussed how this dynamic will be stronger for involuntary minorities who continue to be discriminated against by mainstream American culture (e.g., African Americans) than for voluntary minority immigrant groups (e.g., recent immigrants from Southeast Asia). Although voluntary minorities have initial barriers to overcome due to language and cultural differences, these barriers can be overcome somewhat more easily than the racism faced by involuntary minorities, giving voluntary minorities greater access to mainstream culture and its benefits.

Contrary to this view, several investigators found no evidence of greater disidentification with school among African American students (e.g., Steinberg, Dornbusch, & Brown, 1992; Taylor, Casten, Flickinger, Roberts, & Fulmore, 1994). Nonetheless several studies show that disidentification, particularly as a result of inequitable treatment and failure experiences at school, undermines achievement and academic motivation (e.g., see Finn, 1989; Taylor et al., 1994). It is likely that some students, particularly members of involuntary minority groups, will have these experiences as they pass through the secondary school system. Longitudinal studies of the process of disidentification, and of ameliorating intervention efforts, are badly needed.

Any discussion of performance and motivational differences across different ethnic groups must take into account larger contextual issues. Spencer and Markstrom-Adams (1990) argued that many minority children, particularly those living in poverty, have to deal with several difficult issues not faced by majority adolescents such as racist prejudicial attitudes, conflict between the values of their group and those of larger society, and scarcity of high-achieving adults in their group to serve as role models. These difficulties can impede identity formation in these adolescents, leading to identity diffusion or inadequate exploration of different possible identities (Taylor et al., 1994). Similarly, Cross (1990) argued that one must consider the development of both personal identities and racial group identity. For example, some African American adolescents may have positive personal identities but be less positive about their racial group as a whole, whereas others may have negative personal identities but positive orientations toward their group. Cross argued that many researchers have confounded these two constructs, leading to confusion in our understanding of identity development in, and its motivational implications for, African Americans.

Finally it is critical to consider the quality of the educational institutions that serve many of these youth. Thirty-seven percent of African American youth and 32% of Hispanic youth, compared with 5% of European American and 22% of Asian youth are enrolled in the 47 largest city school districts in this country; in addition, African American and Hispanic youth attend some of the poorest school districts in this country. Of the youth enrolled in city schools, 28% live in poverty and 55% are eligible for free or reduced cost lunch, suggesting that class may be as important (or more important) as race in the differences that emerge. Teachers in these schools report feeling less safe than teachers in other school districts, dropout rates are highest, and achievement levels at all grades are the lowest (Council of the Great City Schools, 1992). Finally, schools that serve these populations are less likely than schools serving more advantaged populations to offer either high-quality remedial services or advanced courses and courses that facilitate the acquisition of higher order thinking skills and active learning strategies. Even children who are extremely motivated may find it difficult to perform well under these educational circumstances.

Graham (1994) made several important recommendations for future work on African American children's motivation that could be applied more broadly to work on different racial and ethnic groups. Two particularly important recommendations are (a) the need to separate out effects of race and social class; and (b) the need to move beyond race comparative studies to studies that look at individual differences within different racial and ethnic groups, and at the antecedents and processes underlying variations in achievement outcomes among minority youth (e.g., Connell et al., 1994; Kao & Tienda, 1995; Luster & McAdoo, 1994; Schneider & Coleman, 1993; Steinberg, Dornbusch, et al., 1992; Steinberg, Lamborn, Dornbusch, & Darling, 1992). Studies of recent immigrant populations and comparative studies of different generations of immigrant populations move in these directions. For example, work by Stevenson and his colleagues, by Tienda and her colleagues, and by Fuligni all demonstrate the power of the types of motivational constructs discussed thus far

in explaining both within- and between-group variation in academic achievement (e.g., Chen & Stevenson, 1995; Lummis & Stevenson, 1990).

THE SOCIALIZATION OF MOTIVATION: PARENTAL INFLUENCES

Early Studies of Parental Influences

The first major empirical attempts to understand the socialization of achievement motivation began with the work of McClelland (1961) and Winterbottom (1958) on need-achievement motivation. Winterbottom found that mothers of sons with high achievement motivation had earlier expectations of independence and achievement, made fewer but earlier restrictive demands on their sons' behaviors, made relatively more positive demands than restrictive demands on their sons' behavior throughout development, rewarded their sons more often with physical affection for compliance with these expectations, and had higher estimations of their sons' abilities even though the actual performance levels of both high and low need-achievement boys were equal. These results suggest the importance of three socialization factors: (a) early independence and achievement training; (b) high estimation of the child's abilities; and (c) reward for behaviors that correspond to parental expectations.

Many socialization studies followed. Results regarding the importance of early independence and achievement training were quite mixed. Instead, timing and sensitivity to the child's skill level, rather than age, emerged as the critical component (cf., Smith, 1969). The importance of the developmental timing theme continues today. In addition, the training for achievement-related activities rather than for independence per se emerged as critical. The need for this distinction became clear as investigators tried to understand social class differences in children's achievement strivings: Although lower-class mothers endorsed caretaking-type independence at an earlier age than middle-class mothers, they endorsed achievement-related independence at an older age and only the early training of the latter predicted children's need-achievement motivation (Rosen, 1959).

In contrast, consistent support emerged for the importance of parents' confidence in their children's abilities. For example, in Rosen and D'Andrade's study (1959), parents of high need-achievement sons had higher achievement expectations, higher career and higher academic aspirations, and set higher standards for their children than parents of low need-achievement sons (see also Crandall, Dewey, Katkovsky, & Preston, 1964; McClelland, 1961; Smith, 1969). Rosen (1959) also demonstrated that parents have higher career aspirations for, and higher ability estimations of, their sons in cultural groups with relatively high mean levels of adult need-achievement (i.e., Irish and Protestant cultures) than parents from other cultural groups. The importance of this variable is still evident.

Consistent support also emerged for the importance of rewarding specific achievement-related behaviors. However, there was some controversy regarding how specific this reinforcement needed to be. Several investigators demonstrated that reinforcement for specific achievement-related behaviors was most important (e.g., Crandall et al., 1964; Zigler & Child, 1969). Other investigators focused more on the general affective climate in the home, suggesting that a warm, affectionate, low-conflict home environment is the key (e.g., Crandall et al., 1964; Solomon, Houlihan, Busse, & Parelius, 1971). In contrast, some studies suggested that the association between positive parent-child interaction patterns and achievement behaviors in children is not a simple, linear relation (e.g., Baumrind, 1971; Crandall et al., 1964). For example, Solomon et al. (1971) found strong support for a quadratic relation between parental warmth and childhood achievement, suggesting that there may be an optimal level of parental warmth that is conducive to the development of achievement motivation: While excessive warmth may reinforce dependent behavior patterns that are incompatible with the expression of achievement orientation, overly critical and evaluative parenting leads to high test anxiety (Sarason et al., 1960).

Several investigators stressed the importance of the interplay among several parenting characteristics (Heilburn & Walters, 1968; Teevan & McGhee, 1972). For example, Baumrind (1971) highlighted the conjoint importance of warmth, control, and democracy in her classification system: Authoritarian parents have strict rules, allow little give-and-take about those rules, and use assertive discipline strategies; permissive parents allow a great deal of autonomy, discipline infrequently, and maintain a warm, positive relationship with children; and authoritative parents provide rules and structure, but discuss those rules with their children, show some flexibility in applying the rules, and are warm and accepting. The association of authoritative parenting style with a wide variety of positive

developmental outcomes including those linked to achievement motivation is well documented (e.g., Baumrind, 1971; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987), at least in the United States. This perspective has been incorporated by Steinberg and his colleagues (e.g., Steinberg, Lamborn, et al., 1992).

The importance of role modeling and "observational learning" was another salient theme during the 1960s. Several specific mechanisms were suggested as important. At the most basic level, it was shown that parents influence their children's attitudes by engaging in different activities. Because children want to be like their parents, they are most likely to value their parents' activities.

Kohlberg (1966) suggested another powerful way in which role models could affect achievement motivation: Children, in an effort to understand their experiences and to synthesize a social role for themselves, make generalizations about appropriate role-related behaviors based on what they observe others like themselves doing. These role-related concepts provide a guide as the children try to master what they consider to be role-appropriate behaviors. Integrating Kohlberg's role concept idea with the other parental influences on need-achievement yields the following predictions: Developing positive achievement orientation should be associated with having a competent role model who is like you, getting the appropriate mix of support for autonomy, instrumental training and structured learning, and experiencing adequate emotional support. Positive achievement orientation in one's same-sex parent helps establish the gender-role appropriateness of achievement behaviors; a warm encouraging relationship with both parents encourages the incorporation of these behaviors into the child's repertoire. For boys, this perspective predicts that positive achievement orientation will be associated with the presence of an authoritative, competent, achieving father and a mother who provides an optimal level of support along with encouragement for independent behavior. In contrast, for girls it predicts that a positive achievement orientation is most likely to develop in the presence of an authoritative, competent, achieving mother and a father who provides an optimal level of support and encouragement for achievement behavior.

Few studies have directly tested these predictions because studies rarely include both parents so that sex of child by sex of parent effects can be assessed. When such tests have been done, this interaction is often significant and consistent with this hypothesis. For example, Crandall and his associates demonstrated that achievement behavior in girls is correlated with less nurturing maternal behaviors coupled with supportive paternal behaviors (Crandall, Preston, & Rabson, 1960; Crandall et al., 1964). Chance (1961) also supported the importance of a competent female role model for girls. Both investigators found that excessive maternal intrusion and control is negatively related to the academic achievement of girls. To the extent that less nurturant and less intrusive maternal behaviors may reflect greater concern of the mother with her own competence, it is possible that these mothers are providing their daughters with a more competent and, consequently, less stereotypical feminine role model than mothers who exhibit more nurturant behavior patterns.

Summary

This early work on the socialization of achievement motivation established the importance of four components of parenting: developmentally appropriate timing of achievement demands/pressure, high confidence in one's children's abilities, a supportive affective family climate, and highly motivated role models. The work also suggested that these variables usually operate in combination with each other to foster high need achievement. For example, Katkovsky, Crandall, and Preston (1964) found that the greater the value parents placed on their own intellectual competence, the more likely they were to participate in children's intellectual activities. By involving themselves in these activities, it is likely that these parents modeled competent achievement-motivated behaviors. Such parents also strongly encouraged their children to engage in intellectual achievement activities and reacted strongly to their children's achievement efforts. Consequently, in these families, the children were exposed simultaneously to all of the socialization experiences linked to high need-achievement motivation.

Finally, the early work demonstrated that the relations between "antecedent" variables and the development of achievement orientation reflect interacting, bidirectional and dynamic processes. Both the data suggesting the importance of timing demands to correspond to the child's abilities and dispositions (Feld, 1967; Smith, 1969) and the data suggesting the importance of the child's perception of gender-role appropriate behaviors (Kohlberg, 1966) indicate that the child's abilities, perceptions, and cognitive processes must be considered if the acquisition of achievement orientation is to be fully understood. In addition, the impact of parenting on the ontogeny of motivational orientation likely depends on the ability of parents to gear their

demands and expectations to the changing needs, abilities, and dispositions of their children as they mature.

With the advent of the social cognitive revolution, researchers shifted their attention to a more cognitive and situated view of motivation. Consistent with this change, investigators interested in the socialization of achievement motivation also shifted the nature of the dependent measures they tried to predict. The distinction between motivational variables and achievement outcome variables has blurred, particularly in socialization studies. So, for example, a plethora of studies now link family characteristics and practices to school achievement. Implicit in these studies is the assumption that family practices influence achievement through their impact on either motivation or skill acquisition. However, the specific motivational mediators are often not included in these studies. We pay special attention in this review to those studies that focus directly on this mediational link. The consistency of the findings from the past 25 years with the themes and constructs in this earlier work is striking.

Parent Influence: Work over the Past 25 Years

Contemporary work has been both more focused and more general. There are many small-scale, laboratory- and field-based studies in which researchers link specific parenting practices to specific motivational constructs. Researchers also have done several large-scale national and local survey-type studies using quite global indicators of parenting practices and beliefs, and of motivational and performance outcomes. In both types of studies, there have been attempts to link parenting practices both to their antecedents and to their socialization consequences. Figure 15.2 provides a general overview of the types of associations tested. Although this specific model was proposed and elaborated by Eccles and her colleagues (Barber & Eccles, 1992; Eccles, 1989, 1993; Eccles & Harold, 1993), similar social-cognitive mediational models of parental behavior and influence have been proposed by several other researchers (e.g., Alexander & Entwisle, 1988; Clark, 1983; Goodnow & Collins, 1990; Grolnick & Slowiaczek, 1994; Hess & Holloway, 1984; Marjoribanks, 1979; Phillips, 1987; Seginer, 1983; Stevenson, Lee, et al., 1990).

Although there is extensive work on some components of this model, few studies include the several components underlying parenting behaviors outlined in Box E. Much of the existing work focuses on the association of the exogenous characteristics (Boxes A and B) with either parents' beliefs (Box C) or child outcomes (Box F; e.g., linking family socioeconomic status and/or ethnicity with parents' child-specific beliefs [Box D], specific parenting practices [Box E], and children's academic outcomes [Box F]; Entwisle & Alexander, 1990; Entwisle, Alexander, Pallas, & Cadigan, 1987; Marjoribanks, 1979; Schneider & Coleman, 1993; Steinberg, Dornbusch, et al., 1992; Stevenson et al., 1990b). The few researchers who have looked broadly at the mediating and moderating hypotheses implied in Figure 15.2 have focused primarily on predicting academic motivation and achievement, and more recently on sports motivation and achievement. Additionally, much of this work is quite general; for example, linking family SES and general family socialization styles to general school achievement, achievement motivation, and other general motivational constructs such as mastery orientation, learned helplessness, and school engagement. Few researchers have focused on why individuals are motivated to do different things: for example, why someone might prefer math to English, swimming to baseball, dancing to playing sports, or reading to playing sports.

Family Demographic Characteristics

Sociological researchers have documented the importance of such factors as family structure, family size, parents' financial resources, parents' education, parents' occupation, community characteristics, and dramatic changes in the family's economic resources in shaping children's academic motivation and achievement (e.g., Alexander & Entwisle, 1988; Beyer, 1995; Coleman et al., 1966; Laosa, 1984; Marjoribanks, 1980; Schaefer & Edgerton, 1985; Sewell & Hauser, 1980; Thompson, Alexander, & Entwisle, 1988). Several mechanisms could account for these associations. First, family demographics could affect children's motivation indirectly through their association with both parent beliefs and practices and the opportunity structures in the child's environment. For example, parents with more education are more likely to believe that involvement in their children's education and intellectual development is important, to be actively involved with the children's education, and to have intellectually stimulating materials in their home (e.g., DeBaryshe, Patterson, & Capaldi, 1993; Marjoribanks, 1979; Schneider & Coleman, 1993).

Second, some demographic characteristics could influence motivation indirectly through the competing demands they place on parents' time and energy. For example, the negative association of single-parent status, time spent at work, and large family size on children's school achievement

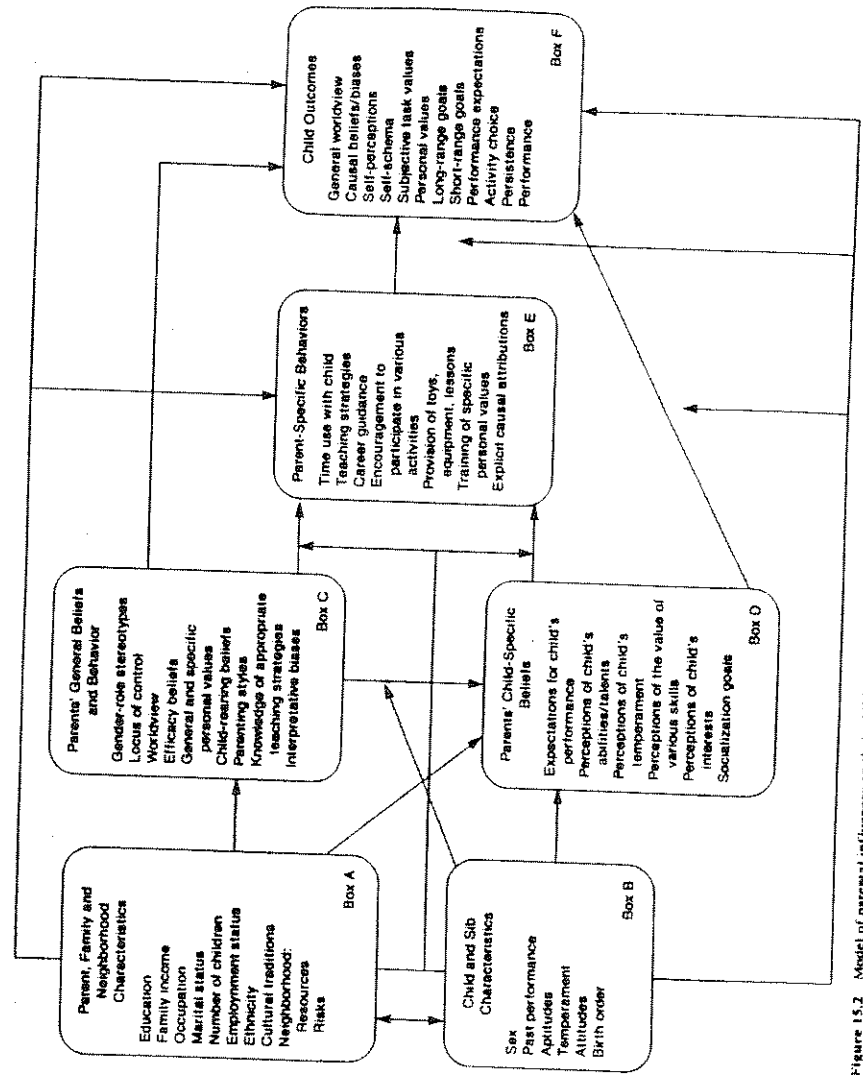


Figure 15.2 Model of parental influences on their children's motivation and achievement.

ight reflect the fact that these factors reduce the time and nergy parents have for engaging their children in activities at foster high motivation (e.g., Schneider & Coleman, 993). Similarly, the psychological stress associated with me demographic factors could influence parents' ability engage in the kinds of behaviors associated with high otivation. Ample evidence documents how much harder it to do a good job of parenting if one lives in a high-risk eighborhood or is financially stressed (e.g., Elder, Conger, Foster, & Ardelt, 1992; Elder, Eccles, Ardelt, & Lord, 995; Furstenberg, 1993; McLoyd, 1990). Not only do such arents have limited resources to implement whatever trategies they think might be effective, they also have to ope with more external stressors than middle-class families living in stable, resource-rich neighborhoods. Not surrisingly, their children also evidence less positive notivation toward conventional school success.

Third, demographic characteristics can also affect parnts' perceptions of, and expectations for, their children. Both parent educational level and family income are related positively to parents' expectations regarding both heir children's immediate school success and long-term ducational prospects (e.g., Alexander & Entwisle, 1988; Marjoribanks, 1979). Similarly, divorced parents have ower expectations for their children's academic achievement (Barber & Eccles, 1992). Ogbu has highlighted this nechanism as one way poverty and anticipated discrimination can undermine academic motivation in some minority populations: If parents believe that there are limited opportunities for their children to obtain conventional forms of success, they are likely to shift their socialization efforts oward other goals and interests (Fordham & Ogbu, 1986; Ogbu, 1985).

Fourth, demographic characteristics can influence parents' beliefs and behaviors, and children's outcomes, in even less direct ways such as those associated with role modeling. Family demographic characteristics are often associated with things like parents' jobs and leisure-time activities, and with the kinds of role models children see outside the home. These behaviors and models can influence children's achievement goals, values, and self-perceptions through observational learning (D'Amico, Haurin, & Mott, 1983). Very little work has addressed this hypothesis directly. Instead, such mechanisms are typically inferred from correlational findings.

Fifth, demographic characteristics linked to culture and ethnicity can influence parents' behaviors and children's motivation through mechanism underlying values, goals, and general belief systems (e.g., Hess & Azuma, 1991; Luster, Rhoades, & Haas, 1989; Modell, 1993). For example, Ogbu (1985) has argued that parents value those characteristics that they assume will help their children succeed in their world. Other scholars describe cultural differences in valued activities, motivational orientation, and behavioral styles (e.g., Maehr & Nicholls, 1980; Modell, 1993; Stevenson, Chen, et al., 1990). Such differences can affect the socialization of motivated behavior through variations in (a) valued activities (e.g., athletic vs. musical competence), (b) valued goals (e.g., communal goals versus individualistic goals; mastery versus performance goals; and doing versus being goals), and (c) approved means of achieving one's goals (e.g., competitive versus cooperative means). There has been a recent increase in research on these types of influences.

Similarly, researchers studying cultural differences in school achievement have linked cultural differences in parents' expectations and achievement-related beliefs to cultural differences in achievement. For example, the work by Stevenson and his colleagues has demonstrated that European American parents, compared with Japanese parents, overestimate their children's academic abilities, are less aware of their children's academic difficulties, and are more satisfied with school performance that falls below their expectations (e.g., Crystal & Stevenson, 1991). Similarly, Stevenson et al. (1990a) found differences in parents' achievement beliefs across African American, Hispanic, and European American parents in the United States.

In summary, there are many ways for family demographic characteristics to directly or indirectly affect motivation. However, even though family demographic characteristics have been linked repeatedly to children's school achievement, their effects are almost always indirect, mediated by their association with parents' beliefs, practices, and psychological resources. In addition, parents' beliefs and psychological and social resources often override the effects of even the most stressful demographic characteristics on children's school achievement and motivation (e.g., Clark, 1983). Finally, there are often complex interactions among various demographic characteristics in predicting either parenting beliefs and practices or child outcomes.

General Child-Rearing Climate

Historically, researchers studying parental influence have focused on the impact of the general patterns and philosophy of child rearing on children's overall orientation toward achievement. Researchers have related a set of general behaviors and beliefs to the development of self-esteem, achievement motivation, locus of control, sense of personal efficacy, and so on. The variables investigated include the general emotional warmth and supportiveness in the home (e.g., Clark, 1983; Connell, Halpern-Felsher, Clifford, Crichlow, & Usinger, 1995; DeBaryshe et al., 1993; Estrada, Arsenio, Hess, & Holloway, 1987; Wagner & Phillips, 1992; Wentzel, 1994; Wentzel & Feldman, 1993; Wentzel, Feldman, & Weinberger, 1991) valuing of achievement (e.g., Clark, 1983; DeBaryshe, in press; Hess, Holloway, Dickson, & Price, 1984); general parental child-rearing beliefs and theories, values, and goals, as well as gender-typed goals and cultural beliefs, goals, and values (e.g., Eccles & Hoffman, 1984; Goodnow & Collins, 1990; Hess, Chih-Mei, & McDevitt, 1987; Huston, 1983; Miller & Davis, 1992); general child-rearing style as well as authority structure, discipline tactics, and general interaction patterns (e.g., Baumrind, 1971; DeBaryshe et al., 1993; Lord et al., 1994; Steinberg, Lamborn, et al., 1992; Wentzel, 1994; Yee & Flanagan, 1985); parental locus of control and personal efficacy (Bandura, 1994; Hess, 1970); and communicative style and teaching style (Hess et al., 1984; McGillicuddy-DeLisi & Sigel, 1991; Sigel, 1982). Similarly, researchers have documented the benefits of active involvement with, and monitoring of, children's and adolescents' school work (e.g., Clark, 1983; Connell et al., 1994; Eccles, 1993; Hess & Holloway, 1984; Marjoribanks, 1979; Schneider & Coleman, 1993; Steinberg, et al., 1992b; Stevenson, Chen, et al., 1990).

Consistent with the conclusions reached in the 1960s, several investigators have stressed an integrated view of how these various parenting characteristics work together to produce optimal motivational outcomes. For example, Grolnick, Ryan and their colleagues stress the interplay of three components of general parenting: involvement and interest in the child's activities, support for autonomous behaviors, and adequate structure (e.g., Connell & Wellborn, 1991; Grolnick & Ryan, 1989; Grolnick, Ryan, & Deci, 1991; Ryan & Grolnick, 1986; E. Skinner, 1990). Similarly, Csikszentmihalyi, Rathunde, and Whalen (1993) suggested that positive motivational development is optimized when there is appropriate synergy in the family's provision of support, harmony, involvement, and freedom. Finally, Eccles and her colleagues (1993) stress the importance of emotional support, role models, and the right balance between structure, control, challenge, and developmentally appropriate levels of support for autonomy (e.g., Eccles, 1993). This balance depends on cultural systems, on the specific context in which the family is living, the age of the child, and other individual characteristics.

Although the magnitude of effects varies by race/ethnicity, sex, social economic class, and nationality, there is consensus that these general parental practices do impact children's motivation and motivated behavior (e.g., Coleman et al., 1966; Eccles, 1993; Hess & Holloway, 1984; Marjoribanks, 1980; Roberts, 1991; Stevenson & Baker, 1987). The results are consistent with three general principles: appropriate levels of structure (similar to Vygotsky's notion of appropriate scaffolding and Hunt & Paraskevopoulos's [1980] notion of good match), consistent and supportive parenting, and observational learning. Families who know enough about their child to provide the right amount of challenge with the right amount of support are more likely to produce highly competent and motivated children. These parents are also able to adjust their behavior to meet the changing developmental needs and competencies of their children. Families that provide a positive emotional environment are more likely to produce children who want to internalize the parents' values and goals and therefore want to imitate the behaviors modeled by their parents. Consequently, if parents provide such a model, children growing up in these homes are likely to develop a positive achievement orientation and value those tasks, goals, and means of achieving one's goals valued by their parents.

General Beliefs

Researchers have shown that parents' general beliefs such as valuing of achievement and school competence, general parental child-rearing beliefs and theories, values and goals, gender-typed ideologies and goals, and culturally based beliefs, goals, and values are linked to parenting behaviors in the school achievement arena in the predicted direction (e.g., see Eccles & Hoffman, 1984, Hess & Holloway, 1984; McGillicuddy-DeLisi, 1982; Miller, in press; Sameroff & Feil, 1985). Much less is known about how these general beliefs relate to specific behaviors and motivational beliefs across various achievement-related activity domains. This issue, however, is beginning to attract attention (e.g., see Eccles, 1989; Goodnow & Collins, 1990; Sigel, McGillicuddy-DeLisi, & Goodnow, 1992). Figure 15.2 depicts a general overview of how one might think about these interrelationships.

Several important questions are suggested by this model: First, what is the relation of parents' general beliefs

and practices to domain- and child-specific parental beliefs, values, and practices? For example, do parents' gender-role stereotypes affect their perceptions of their own child's abilities in various activity domains? Relevant research is reviewed later. Similarly, do parents' beliefs regarding the nature of ability affect their motivational parenting? As discussed earlier, children who think that incompetence is a temporary and modifiable state respond to failure with increased mastery efforts more than children who think that current incompetence reflects insufficient and unmodifiable aptitude (Dweck & Elliott, 1983; Dweck & Leggett, 1988). Parents also differ in their beliefs regarding the origins of individual differences in competence, the meaning of failure, and the most adaptive responses to failure. These beliefs should influence both their response to their children's failures and their efforts to help their children acquire new competencies and interests. Hokoda and Fincham (1995) provide preliminary support for this hypotheses.

Second, do cultural beliefs about things like the nature of ability affect the attributions parents' provide to their children for the child's successes and failures? Hess and his colleagues (e.g., Dunton, McDevitt, & Hess, 1988; Hess, Chih-Mei, & McDevitt, 1987; Holloway, 1988; Holloway, Kashiwagi, Hess, & Azuma, 1986) and Stevenson and his colleagues (Lee, Ichikawa, & Stevenson, 1987; Stevenson, Lee, et al., 1990) have found that Japanese and Chinese parents make different causal attributions than European American parents for their children's school performances, with Japanese and Chinese parents emphasizing effort and hard work and European American parents emphasizing natural talent. Similarly, cultural differences in beliefs regarding ability and competence should relate to the statements parents make to their children about the origins of individual differences in performance such as "you have to be born with math talent" versus "anyone can be good at math if they just work hard enough" (Dunton et al., 1988; Holloway, 1988; Stevenson, Lee, et al., 1990). An interesting cross-cultural difference in the relation between the age of the child and parents' beliefs regarding ability is also emerging. Knight (1981) found that European Australian parents become more nativist in their view of their children's cognitive abilities as their children get older. In contrast, Japanese mothers become less nativist as their children get older (Dunton et al., 1988).

Third, do parents' general developmental theories affect the specific teaching strategies they use with their children? Work related to this question has been done by Sameroff (Sameroff & Feil, 1985) and by Sigel, McGillicuddy-DeLisi, and their colleagues (e.g., Sigel, 1982). McGillicuddy-DeLisi (1982), for example, has shown that fathers' general developmental theories affect the teaching strategy they use with their child in a specific laboratory setting. Few researchers have addressed the implications of parents' developmental theories for the socialization of motivation. But given the importance of the timing of experience for the development of achievement motivation, it is likely that parents' general developmental theories will affect the ontogeny of motivational orientation.

Fourth, how do these general beliefs and practices interact with more specific practices in shaping children's preferences and beliefs? Are the effects of the parents' general beliefs on their children's development primarily mediated by their impact on specific practices and beliefs or do these general beliefs and practices have substantial direct effects themselves? If so, are general beliefs particularly influential on some types of motivational outcomes while specific beliefs and practices are more influential on other outcomes? One might predict, for example, that general beliefs and practices are more likely to affect traitlike aspects of motivation while specific beliefs and practices are more likely to affect the specific domains in which these traitlike characteristics are manifest. This hypothesis has yet to be tested.

Child-Specific Beliefs, Values, and Perceptions: Parents as Interpreters of Competence-Relevant Information

Parents hold many child-specific beliefs about their own children's abilities, which, in turn, have been shown to affect motivationally linked outcomes, such as the well-established positive link of parents' educational expectations to academic motivation and performance (e.g., Alexander & Entwisle, 1988; Brooks-Gunn, Guo, & Furstenberg, 1993; Gottfried, 1991; Kandel & Lesser, 1969; Marjoribanks, 1979; Schneider & Coleman, 1993; Seginer, 1983; Sewell & Hauser, 1980). Along with others, Eccles (1993) suggested the following child-specific parental beliefs as particularly likely to influence children's motivation:

1. Causal attributions for their children's performance in each domain.
2. Perceptions of the difficulty of various tasks for their children.
3. Expectations for their children's success and confidence in their children's abilities.

4. Beliefs regarding the value of various tasks and activities coupled with the extent to which parents believe they should encourage their children to master various tasks.
5. Differential achievement standards across various activity domains.
6. Beliefs about the external barriers to success coupled with beliefs regarding both effective strategies to overcome these barriers and their own sense of efficacy to implement these strategies for each child.

Parents convey these beliefs to their children in many ways: They may make causal attributions for their children's performance—praising their child for that "A" in math by pointing out either the child's natural talent or great diligence. They may also communicate their impression of their children's relative abilities by telling them what they are good at, or, more subtly, by encouraging them to try, or discouraging them from trying, particular activities. Finally, they may make more general comments to their children about the importance of talent versus effort in accounting for individual differences in competence such as "you have to be born with music talent" or "anyone can be good at sports if they just work hard enough."

Such beliefs and messages, particularly those associated with parents' perceptions of their children's competencies and likely success, have been shown to influence children's self and task beliefs (e.g., Alexander & Entwisle, 1988; Eccles-Parsons, Adler & Kaczala, 1982; Miller, Manhal, & Mee, 1991; Pallas, Entwisle, Alexander, & Stluka, 1994; Phillips, 1987). For example, parents' perceptions of their adolescents' abilities are significant predictors of adolescents' estimates of their own ability and interest in math, English, and sports even after the significant positive relation of the child's actual performance to both the parents' and adolescents' perceptions of the adolescents' domain-specific abilities is controlled (Eccles, 1993; Eccles-Parsons, Adler, et al., 1982; Jacobs, 1992; Jacobs & Eccles, 1992). Furthermore, Eccles and her colleagues found support for the hypothesized causal direction of this relationship using longitudinal panel analyses (Eccles, 1993, Eccles et al., in press; Yoon, Wigfield, & Eccles 1993). In addition, in this same longitudinal study (Michigan Study of Adolescent Life Transitions—MSALT), there was a negative relation between mothers' perceptions of their adolescents' *English* ability and the adolescents' perceptions of their own *math* ability. Individuals use a variety of information to decide how good they are in various domains including their relative performances across those domains (i.e., they may decide they are very good at math because they find math easier than other school subjects; see Eccles, 1987; Eccles-Parsons et al., 1983; Marsh, 1990a). The MSALT results suggest that a similar phenomenon characterizes the impact of parents' perceptions of their children's abilities on the development of the children's self-perceptions. The adolescents in this study had lower estimates of their math ability than one would have predicted based on their teachers' and their mothers' rating of their math ability if their mothers thought that they were better in English than in math (Eccles, Jacobs, et al., 1991).

Influences on Parents' Perceptions of Their Children's Competencies. How do parents' form their impressions of their children's abilities? Parents appear to rely quite heavily on objective feedback, such as school grades (K. Alexander & Entwisle, 1988; Arbreton & Eccles, 1994; Eccles-Parsons, Adler, et al., 1982; Miller, in press). The causal attributions parents make for their children's performances also influence parents' perceptions. For example, in Arbreton, Eccles, and Harold's (1994) longitudinal study, parents' attributions of success to talent led to increments in the parents' perceptions of their children's abilities in math, English, and sports and decrements in parents' estimates of how hard their children will have to work to be successful in math, English, and sports even after appropriate controls for prior performance and prior ability ratings were included (cf., Dunton et al., 1988; Holloway, 1986; Yee & Eccles, 1988).

Researchers have also assessed sex of child effects on parents' attributional patterns to help explain the gender-role stereotypic distortions in parents' impression of their children's academic and nonacademic abilities that exist from an early age on, even after one controls for actual performance differences (e.g., K. Alexander & Entwisle, 1988; Eccles, 1993, 1994; Eccles & Harold, 1991; Eccles et al., 1989; Eccles-Parsons, Adler, et al., 1982; Jacobs, 1992, Jacobs & Eccles, 1992). For example, Yee and Eccles (1988) found that parents of boys rated natural talent as a more important reason for their children's math successes than parents of girls. In contrast, parents of girls rated effort as a more important reason for their children's math successes than parents of boys (see also Dunton et al., 1988; Holloway et al., 1986). Similarly, in Eccles, Jacobs, et al (1991), mothers gave gender-role stereotypic causal attributions for their adolescent children's successes and failures in mathematics, reading, and sports: Sons' successes in math and

sports were more likely to be attributed to natural talent than daughters'; daughters' success in English was more likely to be attributed to natural talent than sons.' Furthermore, as predicted, the sex differences in these mothers' ratings of their adolescents' abilities were substantially reduced once the sex difference in the mothers' causal attributions was controlled, supporting the hypothesis that parents' gender-role stereotyped causal attributions mediate parents' gender-role stereotyped perceptions of their children's math competence. Lee et al. (1987), however, found no evidence of a sex-of-child effect on parents' attributions for younger children in several cultures.

Evidence is also emerging in support of the hypothesis that more general beliefs and stereotypes—often linked to gender or cultural group—influence parents' gender-role stereotypic perceptions of their children's abilities and interests. Using path analytic techniques, Jacobs and Eccles (1992) tested whether parents' gender-role stereotypes generalized to their perceptions of their own children's ability: Parents who endorsed gender-role stereotypes regarding which sex is most interested in, and has the most natural talent for, math, English, and sports also distorted their ratings of their own children's abilities in each of these domains in the gender-role stereotypic direction (cf., Jacobs, 1992).

Child-Specific Beliefs, Values, and Perceptions: Parents as Interpreters of Task Value

The messages parents provide about the value of various activities should also influence children's motivation. Parents can convey differential task values through explicit rewards and encouragement for participating in some activities rather than others. Similarly, parents can influence children's interests and aspirations, particularly about future educational and vocational options, through explicit and implicit messages they provide as they counsel children. For example, parents, teachers, and counselors are more likely to encourage boys than girls to pursue math-related interests (see Eccles & Harold, 1992; Eccles & Hoffman, 1984).

Whether this encouragement directly affects either the value children attach to math or their participation in math activities has not been established. Some work suggests rather weak relations between parents' own task value and adolescents' task value for math (Eccles-Parsons, Jacobs, et al., 1982). The relations may be stronger for younger children and when a wider range of activities are included. The relation may also be curvilinear. Work in the area of intrinsic motivation suggests that excessive attempts to influence a child's interest in a specific activity can backfire and lead to a decrease in interest and involvement (e.g., Deci & Ryan, 1985; Lepper & Green, 1978).

A related issue regarding parents' task value socialization efforts is beginning to attract some attention. Building on the work of William James (1892/1963), several investigators have become interested in the association between achievement, task values, self-concepts, and self-esteem (e.g., Harter, 1990, 1992; Winston et al., in press). These investigators suggest that self-esteem and motivation are enhanced when one values those activities at which one is competent. Extending this idea to more than one activity domain suggests the importance of the hierarchy of individuals' subjective task values and competence perceptions. If James is correct, then children with high self-esteem and motivation should have congruent hierarchies for their competency assessments and their subjective task values. In contrast, children who feel relatively incompetent about activities relatively high on their task value hierarchy are likely to be at risk for low self-esteem. Harter (1990) has found support for this hypothesis. Individuals may protect their self-esteem over time by lowering the value they attach to those activity domains at which they are relatively less competent. For example, they may cope with being relatively incompetent in tennis by concluding that it is not very important to be competent in tennis. But what happens when an individual cannot adopt this ego-protective strategy? For example, what happens if a child's parents' activity value hierarchy is both rigid and inconsistent with the child's relative competencies and, consequently will not allow the child to protect his or her self-esteem by lowering the value he or she attaches to those activity domains at which he or she is relatively less competent? In this case, the child is likely at high risk for developing either low self-esteem or other self-protective motivational and behavioral strategies such as those proposed by Covington (1992) in his work on self-worth.

Provisions of Specific Experiences at Home

There is ample evidence that parents influence their children's motivation through the learning experiences they provide for their children. Researchers have shown that reading to one's preschool children and providing reading materials in the home predicts the children's later reading achievement and motivation (e.g., Dix, 1976; Wigfield & Asher, 1984). Such experiences likely influence both the child's skill levels and the child's interest in doing these

activities; both of which, in turn, should facilitate the child's transition into elementary school and subsequent educational success. Entwisle and Alexander (1993) have documented that the skills and work habits children have when they enter kindergarten are among the strongest predictors of academic motivation and performance throughout elementary and secondary school. That these effects hold even when one controls for the children's scores on standardized intelligence tests provides support for the hypothesis that some of the effect is mediated through social and motivational processes. These results are especially interesting because they illustrate how experience in one context, the home, can influence the child's experiences and motivation in other contexts, such as school.

Similarly, by providing the specific toys, home environment, and cultural and recreational activities for their children, parents structure their children's experiences. Through the processes associated with familiarity (Zajonc, 1968), and both operant and classical conditioning, children should come to prefer the toys and activities to which they are exposed. However, the extent to which this is true should depend on the affective and motivational climate created by parents when the children are engaged with any particular experience. If children learn a skill in a positive setting, they should come to enjoy and value the activity and to develop intrinsic motivation for doing it. If, instead, they learn a skill in a highly negative charged or highly controlling setting, children likely will develop an aversion to that activity.

Exposure to different toys and activities also provides children with the opportunity to develop different competencies. For example, manipulative toys and large space play activities affect the development of such basic cognitive skills as spatial facility (Connor, Schanckman, & Serbin, 1978). Having specific success experiences and acquiring specific skills likely influence motivation to engage in related activities through their influence on personal efficacy, ability self-concepts, and reduced performance/evaluation anxiety.

For the skill acquisition process to have these positive effects, however, experiences must be appropriately matched to the children's current competence levels so that the child is challenged but not overwhelmed. Building on Hunt and Paraskevopoulos' (1980) notion of match, Miller and his colleagues (e.g., Miller, Manhal, & Mee, 1991) have looked at the connection between parents' specific beliefs about their children's abilities and the experiences they provide for their children. They argue that parents who have an accurate view of their children's level of competence are better at providing appropriate tasks and adequate scaffolding as the children go about mastering these tasks. Such interactions, in turn, are likely to facilitate positive motivational outcomes and better skill acquisition.

Group Differences in Provision of Specific Experiences. There is abundant evidence that parents provide different experiences for sons and daughters (Eccles & Hoffman, 1984; Huston, 1983). For example, parents are less likely to nominate their daughters for gifted programs at school and to enroll their daughters in computer and competitive sports programs (see Eccles & Harold, 1992). Similarly, families with limited economic resources are more willing to invest these resources in their sons than in their daughters (see Eccles & Hoffman, 1984). It is likely that the gender differences in children's competencies, self-perceptions, interests, and aspirations result in part from these differences in the experiences parents provide for their sons and daughters (Huston, 1983). Characteristics such as social class, family income, and ethnicity also affect the toys and other experiences parents are able to provide for their children (Coleman et al., 1966; Laosa, 1984; Marjoribanks, 1980). Social class also influences what neighborhood a family lives in. In turn, the neighborhood influences the resources and role models readily available to the family and to their children as well as the peers children are likely to have available for friends. As a consequence of all these factors, families living in poor neighborhoods are likely to have an especially difficult time providing their children with rich and varied experiences both within and outside the home (Eccles & Lord, in press; Furstenberg, 1993).

Summary

The studies reviewed suggest a multivariate model of the relation between antecedent child-rearing variables and the development of achievement orientation: The development of achievement motivation likely depends on the presence of several variables interacting with each other to mediate and moderate children's motivation. Proper timing of demands creates a situation in which children can develop a sense of competence in dealing with their environment. An optimally warm and supportive environment creates a situation in which children will choose their parents as role models. The presence of high yet realistic expectations creates a demand situation in which children will perform in accord with the expectancies of

their parents. Finally, the ability level of a child must be such that attainment of the expected level of performance is within that child's capacity. All these factors, as well as the availability of appropriate role models, are essential for children to develop a positive, achievement orientation. The exact way this orientation will be manifest is likely dependent on the values a child has learned, which are directly influenced by the culture in which the family lives and the social roles that the child is being socialized to assume.

THE DEVELOPMENT OF MOTIVATION: INFLUENCES OF SCHOOL AND INSTRUCTIONAL CONTEXTS, AND SCHOOL TRANSITIONS

Trying to identify those instructional characteristics that will motivate children to engage the activity and master the skills being taught has been a core issue in educational and motivational psychology. Consequently, there are hundreds of relevant studies, ranging from small-scale laboratory experiments to large-scale school interventions. Space limitations allow only an overview of the work being done in this area, with particular attention to those researchers who have articulated and tested specific motivational hypotheses (cf., Modell, 1993; Stipek, 1993).

General Instructional Practices and Teacher Beliefs

Classroom Climate and Emotional Support

Historically, researchers studying teacher influence on motivation focused on the impact of personal characteristics and teaching style on children's overall achievement, motivation, satisfaction, and self-concept (see Dunkin & Biddle, 1974). These researchers assumed that general teacher characteristics such as warmth, and practices such as indirectness would enhance student satisfaction, persistence, curiosity, and problem-solving capability through their impact on general classroom climate. Similarly, based on the assumption that warm relationships increase a teacher's influence by increasing children's desire to do what the teacher says (due either to identification or the increased power of the teacher's social reinforcement properties), many investigators studied the association between teacher warmth/supportiveness and student motivation (particularly the value attached to working hard) and performance. However, since much of this early work was flawed methodologically, the results are difficult to interpret (see Duncan & Biddle, 1974).

More recently, researchers studying classroom climate have separated factors such as teacher personality and warmth from teacher instruction and managerial style. And, as is true for parents, the effects of "climate" are dependent on other aspects of a teacher's beliefs and practices. For instance, Moos and his colleagues have shown that student satisfaction, personal growth, and achievement are maximized only when teacher warmth/supportiveness is accompanied by efficient organization, stress on academics, and provision of focused goal-oriented lessons (Fraser & Fisher, 1982; Moos, 1979; Trickett & Moos, 1974). Furthermore, these practices are more common among teachers who believe they can influence their students' performance and future achievement potential (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; Rutter, Maughan, Mortimer, & Ouston, 1979).

Researchers have extended this general approach to the climate of the entire school. These researchers provide evidence that schools vary in the climate, teachers' sense of efficacy, and general expectations regarding student potential, and that variations in general climate affect the motivation of both teachers and students in fundamental ways (e.g., Bandura, 1994; Bryk, Lee, & Holland, 1993; Rutter et al., 1979). In an evaluation of a school intervention based on these principles, Cauce, Comer, and Schwartz (1987) demonstrated their impact on adolescents' confidence in their academic abilities (see Becker & Hedges, 1992). Similarly, in their analysis of higher achievement in Catholic schools, Bryk et al. (1993) discussed how the culture (or climate) within Catholic schools is fundamentally different from the culture within most public schools in ways that positively affect the motivation of students, students' parents, and teachers. This culture (school climate) values academics, has high expectations that all children can learn, and affirms the belief that the business of school is learning. The work of Maehr, Midgley, and their colleagues provides a final example of this school organizational perspective (e.g., Anderman & Maehr, 1994; Maehr & Anderman, 1993; Maehr & Midgley, 1996). These investigators suggest that certain school-level policies and practices (such as those promoting ability tracking, comparative performance evaluations, retention, and ego instead of mastery focus) undermine the motivation of both teachers and students through their impact on the goals these individuals bring to the learning environment (cf., Mac Iver, Reuman, & Main, 1995).

Classroom Management

The findings from studies of teacher management also parallel those from studies of family environment (Brophy, 1987). In rooms where teachers have established smoothly running and efficient procedures for monitoring student progress, providing feedback, enforcing accountability for work completion, and organizing group activities, student achievement, motivation, and conduct are enhanced. Although there has been almost no research on the impact of management on student beliefs and values, it seems likely that the quality of classroom management contributes to differences in children's perceptions. Blumenfeld, Hamilton, Bossert, Wessels, and Meece (1983) found that classroom academic orientation has significant benefits for children's perceptions of the importance of adherence to classroom work norms. Under conditions where children are held accountable for work, they exert more effort, value success more, and consequently do better. As a result, the children may also see themselves as more able.

Control and Autonomy

deCharms (1968), Deci and Ryan (1985), and Lepper (Lepper & Cordova, 1992) have all argued that intrinsic motivation is good for learning. Furthermore, they have argued that classroom environments that are overly controlling and do not provide adequate autonomy undermine intrinsic motivation, mastery orientation, ability self-concepts and expectations, and self-direction, and induce a learned helplessness response to difficult tasks. Support for this hypothesis has been found in both laboratory and field-based studies (e.g., Boggiano & Katz, 1991; Boggiano, Main, & Katz, 1987; Boggiano et al., 1992; Deci, Schwartz, Sheinman, & Ryan, 1981; Flink, Boggiano, & Barrett, 1990; Grolnick & Ryan, 1987; Ryan & Grolnick, 1986). Boggiano and her colleagues (see Boggiano et al., 1992) have also found that students with an extrinsic motivational orientation are most likely to respond to controlling teaching strategies with the learned helplessness pattern of behaviors and self-perceptions.

In other work, Boggiano and her colleagues had teachers teach small groups of children a set of tasks using either a controlling strategy or a less controlling strategy, and videotaped the sessions (Flink et al., 1990). Observers of the tapes rated the more controlling teachers as the better teachers even though the children did better in terms of learning and learning transfer under the less controlling teacher. Similar results were reported by Deci, Speigel, Ryan, Koestner, and Kauffman (1982). Although these researchers did not investigate why this pattern emerged, they did suggest that there is a bias in this country to view more controlling styles as better because these styles appear more active, directive, and better organized, and because they appear to be consistent with the types of teaching and parenting practices advocated by operant conditioning and token economy specialists (e.g., Kazdin, 1982).

A related line of work focuses on the adverse effects of rewards on motivation and interest. Lepper first demonstrated these effects by rewarding children for activities that they otherwise found interesting. Subsequent research has demonstrated that such rewards have a negative effect primarily when they provide no valid information regarding the quality of performance. Under these conditions, the rewards are seen as controlling and it is this aspect of the rewards that undermines intrinsic interest in the activity (e.g., Cameron & Pierce, 1994).

But what is the best mix of autonomy and structure? Studies of both well-managed classrooms and international differences in achievement (Stevenson, Lee, et al., 1990) have demonstrated the importance of teacher control in keeping a large group focused on learning activities. Although these two perspectives seem somewhat contradictory, they can be integrated if one focuses on the optimal levels of structure combined with developmentally appropriate provision of autonomy as discussed earlier. However, because researchers in these two areas do not usually work together, they tend to approach the issue with somewhat different questions and conceptualizations, making it difficult to compare across studies to determine exactly which aspects of control are good and which undermine intrinsic motivation.

Classroom/Instructional Organization and Structure

The work on classroom and instructional organization is linked conceptually to the work on support for autonomy, reward structures, and classroom climate. This work suggests that students are more motivated in less traditional classrooms where many activities occur simultaneously, materials are varied in level and content, and there is some choice regarding partners and work activities. Students in these classrooms develop more autonomy, have more positive self-concepts and capitalize better on their individual strengths and preferences, without sacrificing achievement (see Horwitz, 1979). Similarly, when teachers adopt a cooperative instructional and reward structure in their classrooms, motivation, liking for subject matter, and self-perceptions of competence are all enhanced. Both learning and motivation

ar to be maximally facilitated in cooperative learning
tions that are characterized by both group goals and
idual accountability (Stevens & Slavin, 1995). Such
tions appear to create positive interdependence and
ulating group inquiry which, in turn, arouse social and
emic motivational goals (see Sharan, 1980) and prevent
ree rider effect" (Stevens & Slavin, 1995).

oility Grouping Practices. Curricular tracking and
een-classroom ability grouping are other practices at-
ng recent attention. Despite much research, however,
trong and definitive answers have emerged regarding
impact on motivation (see Fuligni, Eccles, & Barber,
Gamoran & Mare, 1989; Kulik & Kulik, 1987;
n, 1990). The results vary depending on the outcome
sed, the group studied, the length of the study, the
ol groups used for comparison, and the context in
these practices are manifest. The situation is com-
ed by conflicting hypotheses that emerge about the
direction and the magnitude of the effect depending
e theoretical lens one uses to evaluate the practice.
est justification for these practices derives from a
n-environment fit perspective: People will be more
ated to learn if the material can be adapted to their
nt competence level. There is some evidence consis-
vith this perspective for students placed in high-
classrooms, high within-class ability groups, and
e tracks (Dreeban & Barr, 1988; Fuligni et al., 1995;
ran & Mare, 1989; Pallas et al., 1994). The results for
nts placed in low-ability and noncollege tracks do not
m this hypothesis. By and large, when long-term ef-
re found for this group of students, they are negative,
rily because these students are often provided with
or educational experience and support (Dreeban &
1988; Pallas et al., 1994). These latter results are
tent with a social stratification theoretical perspec-
lut it is important to note that these negative effects
to result from the stereotypically biased implemen-
of ability grouping programs. A different result
emerge if the teachers implemented the program
n keeping with the goals inherent in the person-envi-
nt fit perspective by providing high-quality instruc-
nd motivational practices tailored to the current
tence level of all of the students.
ial comparison theory leads to a different prediction
ng the effect of ability grouping and tracking on one
of motivation: ability self-concepts. Ability group-
uld narrow the range of possible social comparisons,
and so lead to declines in the ability self-perceptions of higher ability individuals and increases in the ability self-perceptions of lower ability individuals. The few existing studies support this position. Reuman, Mac Iver, Eccles, and Wigfield (1987) found that being placed in a low-ability math class in the seventh grade led to an increase in self-concept of math ability and a decrease in test anxiety; and conversely being placed in a high-ability math class led to a decrease in self-concept of math ability (see also Reuman, 1989). Similarly, Marsh, Chessor, Craven, and Roche (1995) found that being placed in a gifted and talented program led to a decline over time in the students' academic self-concepts. Pallas et al. (1994), however, found no evidence of within-class ability grouping in reading effects on ability self-concepts and performance expectations during the early elementary school years once the effect of ability group placement on actual achievement level was controlled.

The impact of these changes on other aspects of motivation likely depends on individual and contextual factors. Atkinson (1964) provided evidence that achievement motivation is maximized when the probability of success is .5. If the net result of the big-fish/little-pond effect is to bring both low and high achievers closer to the .5 probability level, then ability grouping should have a positive impact on the motivation of high need-achievement individuals in both ability groups and a negative impact on the motivation of the low need-achievement individuals in both ability groups. Theorists focused on the importance of challenging material in a supported environment also suggest an increase in motivation for everyone provided that the quality of instruction leads to equally challenging material for all ability levels. Conversely, if the social comparison context also increases the salience of an entity view rather than an incremental view of ability, then the decline in ability self-concepts of the high-ability individuals might lead them to engage in more failure-avoidant and ego-protective strategies.

Specific Instructional Tasks. Teachers can affect children's motivation by the type of material they present, the amount of work assigned, frequency of coverage, and instructional style (see Stipek, 1996). If the teacher gives too much work, students are less likely to enjoy the task; if topics are infrequently covered, children will conclude that they are not important; and if the teacher makes the subject matter interesting and provides variety, children's interest and motivation increase (see Ames, 1992). Teacher knowledge about, and involvement with, subject matter also can affect preferences. Students like math and science more when taught by teachers who are trained in the area and hold memberships in professional societies, presumably because these teachers use more relevant, authentic, and interesting material for teaching their specialty (see Eccles, 1989). Similarly, individuals' interest in the material is enhanced when the material is taught in a way that is meaningful to them and their life goals (Blumenfeld, 1992; Krapp, Hidi, & Renninger, 1992; Pintrich et al., 1993).

More Integrated Approaches to General Practices and Beliefs

The work reviewed thus far is based on studies focused on only one or two contextual characteristics at a time. The following work reflects a shift to a more global, integrated view of the impact of learning contexts on motivation.

General Teaching Practices Linked to Self-Evaluation and Motivation. Among the first such efforts, Rosenholtz and Simpson (1984) suggested a cluster of teaching practices (e.g., individualized vs. whole group instruction; ability grouping practices; publicness of feedback) that should affect motivation because they make ability differences in the classroom especially salient to the students (cf., Mac Iver, 1987). They assumed that these practices affect the motivation of all students by increasing the salience of extrinsic motivators and ego-focused learning goals, leading to greater incidence of social comparison behaviors, and increased perception of ability as an entity state rather than an incremental condition. All these changes should reduce the quality of the children's motivation and learning. The magnitude of the negative consequences of these shifts, however, should be greater for low-performing children because, as they become more aware of their relative low standing, they are likely to adopt ego-protective strategies that undermine learning and mastery (Covington, 1992). The little available research provides preliminary support for these hypotheses (e.g., Mac Iver, 1987; Rosenholtz & Rosenholtz, 1981).

Evaluation practices also influence self-evaluation. Although students primarily use feedback and grades to evaluate their ability, the form of these reporting practices can affect how they use this information. How teachers report on, and recognize, performance will affect the degree to which ability-related information is accessible, comparable, and salient (Rosenholtz & Rosenholtz, 1981). Public methods for charting progress, such as wall posters detailing amount or level of work completed provide readily accessible information. In addition, teachers who frequently contrast students' performances, grant privileges to "smart" children, or award prizes for "best" performance may increase the importance of ability as a factor in classroom life and heighten the negative affect associated with failure (see Ames, 1992). When there are few clear winners and many losers, relative performance will be more salient to children (Nicholls, 1979b). In contrast, in more cooperative or mastery-oriented classrooms, everyone who performs adequately can experience success. As a result, youngsters in mastery-oriented rooms are more likely to focus on self-improvement than social comparison, to perceive themselves as able, and to have high expectation for success (Nicholls, 1984; Slavin, 1990). Finally, when variations in evaluations are either attributed to entity-based differences in competence, or are used as a controlling strategy rather than primarily for information on progress, intrinsic motivation is reduced (Kage & Namiki, 1990). These results suggest that mastery evaluation practices are better at fostering and maintaining motivation than social normative, competitive, or controlling evaluation practices (see also Mac Iver & Reuman, 1993; Maehr & Midgley, 1996).

Teachers' Ability Beliefs, Instructional Strategies, and Classroom Goal Structure. Closely related to the work of Rosenholtz and Rosenholtz (1981) is the work growing out of goal theory (e.g., Ames, 1992; Dweck & Elliott, 1983; Meece, 1994; Nicholls, 1984). Researchers now have examined a wide range of learning context characteristics that influence children's motivational orientation and learning through their impact on the children's achievement goals. What is especially important about this work is the great care the researchers are taking in articulating a model of how teacher beliefs translate into specific practices, which, in turn, influence specific aspects of children's motivation. It has been suggested that teachers' beliefs regarding both the nature of ability (incremental vs. entity) and their own efficacy to teach all students affect the teaching practices used, which, in turn, create a climate that focuses children's attention on either mastery or performance goals (Ames, 1992; Anderman & Maehr, 1994; Midgley, Anderman, & Hicks, 1995; Nicholls, 1984). In her review of this research, Ames (1992) outlined how variations in the tasks used for instruction, the authority relations between students and teachers, and the nature of evaluation and recognition can affect students' motivation

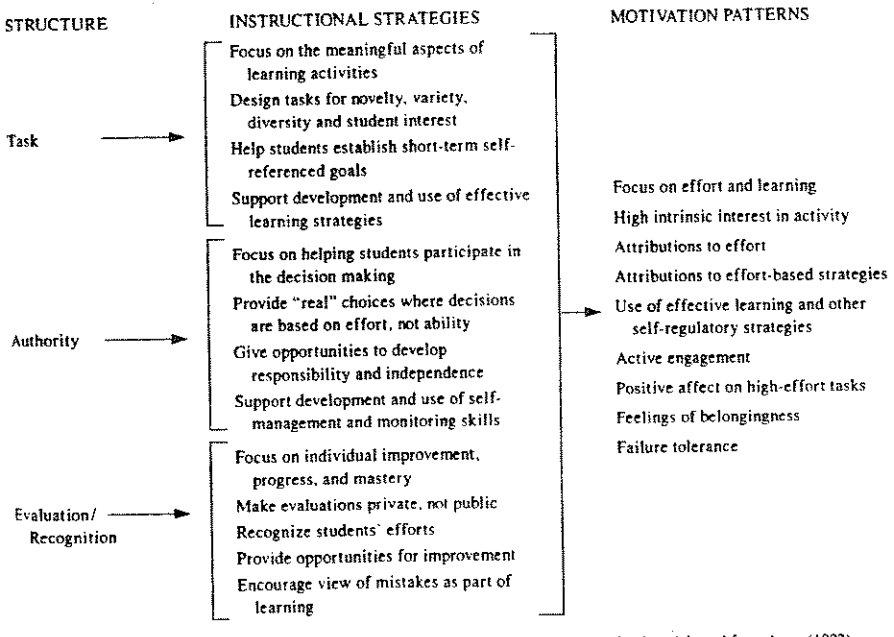


Figure 15.3 Ames' summary of the link between instructional strategies and student motivation. Adapted from Ames (1992).

Figure 15.3 summarizes her conclusions. The motivational constructs include many of the components of motivation described in this chapter. In addition, the range of instructional strategies is quite broad, overlapping with several dimensions discussed earlier.

Preliminary findings from several studies support the hypothesized links in Figure 15.3 (see reviews by Ames, 1992; Anderman & Maehr, 1994; Blumenfeld, 1992; Blumenfeld et al., 1991; Boggiano et al., 1992; Dweck & Elliott, 1983; Stipek, 1993, 1996). Especially relevant are studies showing the positive effects of mastery learning programs (Kulik, Kulik, & Bangert-Drowns, 1990). However, although the individual associations hypothesized in Figure 15.3 have been documented, much more work is needed to understand how various instructional strategies interact with each other in a single context, such as the classroom, to affect motivation and learning (Ames, 1992; Blumenfeld, 1992). Most teachers in American schools use a mix of mastery-oriented and performance-oriented strategies. They may use mastery-oriented tasks and allow the students appropriate levels of autonomy but still rely primarily on social comparative evaluation strategies, and children often engage in social comparison and competition even in mastery-oriented classrooms (Crockenberg & Bryant, 1978). We know little about the best combination of these features to support a mastery-oriented motivational orientation. Nor do we know when, and if, the collection of motivational dimensions actually cluster together within the individual. More work is needed to determine how these motivational components interrelate with each other and with other motivational constructs to influence behavior. Of particular importance is the need to study the interaction of multiple goals as well as the contextual characteristics influencing the

relative salience of various achievement, social, and moral goals in particular settings.

The direction of causality in Figure 15.3 primarily goes from teacher to student, implying that the student is rather passive. But students' own beliefs about effective instructional and motivational strategies need to be considered. Results of two studies are illustrative. Nolen and Nicholls (1994) found that students and teachers often had different views of effective motivational practices; for example, students thought extrinsic rewards were more effective, and praise less effective, than teachers did. Further, Thorkildsen, Nolen, and Fournier (1994) found that some children thought practices promoting meaningful learning were most fair, others favored practices emphasizing the importance of effort, and still others focused on practices involving extrinsic reward. If students' ideas on appropriate motivational strategies do not mesh with teachers' ideas and practices, their motivation is not likely to be enhanced.

Girls and Math (Girl-Friendly Classrooms). The work on understanding group differences in achievement and achievement choices is another example of an attempt to identify a broad set of classroom characteristics related to motivation. The work on girls and math is one example of this approach. Sex differences in children's preferences for learning contexts likely interact with subject area to affect their interest in those subjects (Casserly, 1980; Eccles, 1989; Hoffmann & Haeussler, 1995; Kahle, 1984). Females appear to respond more positively to math and science instruction if it is taught in a cooperative or individualized manner rather than a competitive manner, if it is taught from an applied/person-centered perspective rather than from a theoretical/abstract perspective, if it is taught using a hands-on approach rather than a book-learning approach, and if the teacher avoids sexism in its many subtle forms. These effects likely reflect the fit between the teaching style, the instructional focus, and females' values, goals, motivational orientation, and learning styles. The few relevant studies have found support for this idea (e.g., Eccles, 1994; Eccles & Harold, 1992; Hoffmann & Haeussler, 1995). If such classroom practices are more prevalent in one subject area (e.g., physical science) than another (e.g., biological or social science), then one would expect gender differences in motivation to study these subject areas. Researchers studying classroom practices have found that math and physics are especially likely to be taught in a manner least preferred by females. Consequently, it is not surprising that many girls are less interested in these subject areas than in other subject areas that are taught in a manner more consistent with their preferences. It should also be noted that math and physical science do not have to be taught in these ways; more girl-friendly instructional approaches can be used. And when they are, both girls and boys are more likely to continue taking courses in these fields and to consider working in these fields when they become adults.

The girl-friendly classroom argument is a good example of person-environment fit. Many investigators have suggested that a person will be maximally motivated to learn in situations that fit well with their interests, current skill level, and psychological needs because the material is then challenging, interesting, and meaningful (e.g., Csikszentmihalyi et al., 1993; Eccles & Midgley, 1989; Eccles, Wigfield, et al., 1984; Krapp et al., 1992). Variations on this theme include aptitude by treatment interactions and theories stressing cultural match or mismatch as explanations for group differences in school achievement and activity choices (e.g., Fordham & Ogbu, 1986). Finally, stage-environment fit theory (Eccles & Midgley, 1989) is a direct extension of person-environment fit theory into a developmental frame. We discuss this perspective more extensively later.

Student-Specific Beliefs, Expectations, Causal Attributions, and Interactions

The mechanisms discussed thus far are assumed to operate at the group or classroom level. Instructors can also influence children's ability beliefs, task value, performance expectations, and personal efficacy through individuated feedback and interactions. The most obvious example of this effect is the teacher expectancy literature. Beginning with the work by Rosenthal (1969), many researchers examined teacher-expectancy effects. This work suggests that teacher-expectancy effects depend on whether teachers structure activities for and interact differently with high- and low-expectancy students and on whether the students perceive this difference (Brophy, 1987; Eccles & Wigfield, 1985; Eccles-Parsons, Kaczala, et al., 1982; Weinstein, 1989; Weinstein, Marshall, Sharp, & Botkin, 1987). Recent work also suggests that these effects are not as prevalent as once believed. For the effect to be of great concern, the researcher needs to demonstrate that it has a biasing effect that leads to changes in motivation and performance over time beyond what is expected based on the pre-existing characteristics of the student (Jussim & Eccles, 1992; Jussim, Eccles, & Madon, 1996). Evidence for such biasing effects is minimal. Teacher expectations for individual students and subsequent student motivation and performance

tend to reflect the accurate association between teacher expectations and student characteristics such as prior achievement levels and behavioral patterns (see Jussim et al., 1996). In addition, not all teachers respond to their expectations with behaviors that undermine the motivation and performance of the low-expectancy students. Some teachers respond to low expectations with increased instructional and motivational efforts for particular students and succeed in increasing both their motivation and their learning (Goldenberg, 1992). Nonetheless, small teacher expectancy effects over time can have a large cumulative effect on both motivation and achievement (Jussim et al., 1996), particularly if these effects begin in kindergarten and the first grade (Entwisle & Alexander, 1993). Finally, some groups may be more subject to the biasing effects of teacher expectations. Jussim et al. (1996) found that girls, low SES students, and minority students are more susceptible to these effects than are White middle-class boys.

Several researchers have argued that teachers' more general feelings of efficacy operate much like their expectancy effects in that they influence the motivation of the children to learn through their impact on the children's own sense of efficacy (Ashton, 1985; Bandura, 1994; Brookover et al., 1979). Although some teachers lack a general sense of efficacy and believe they cannot motivate or teach any of their students, more often feelings of low teacher efficacy are focused on a subset of the students within a particular classroom—the low-achieving students. In this case, the teacher is less likely to try to motivate these students than the more competent students in the class, leading to teacher expectancy effects. Few researchers, however, have tested the interaction of general teacher efficacy beliefs with student performance level in assessing teacher expectancy effects. Support for this prediction was obtained by Midgley, Feldlaufer, and Eccles (1989a).

Weiner (1985) and Graham (1984) studied a slightly different aspect of within-classroom variations in teacher-student interaction: the impact of teachers' emotional reactions on students' self-evaluations and motivation. They have shown that such emotional reactions influence children's own causal attributions and expectations for future success. Pity and excessive help, for example, lead to lack of ability attributions, lowered expectations for success (Graham & Barker, 1990), and efforts to maintain one's self-worth (Covington, 1992). Similarly, Eccles-Parsons, Kaczala, et al. (1982) demonstrated that, when praise is used in a way that conveys low teacher expectations (e.g., patronizing praise for low-level successes), it undermines junior high school students' confidence in their abilities as well as their expectations for success. In contrast, when overt criticism conveys high teacher expectations (e.g., when teachers use public criticism only with the high-performing students because they want to protect the low-performing students' egos), high rates of criticism are associated with higher than predicted confidence in one's ability.

Summary

These studies suggest that motivation is optimized when students are provided with challenging tasks in a mastery-oriented environment that provides good emotional and cognitive support, meaningful material to learn and master, and sufficient support for their own autonomy and initiative (cf., Lipsitz, 1984). Similar characteristics emerged as the important familial influences on the ontogeny of motivation, suggesting that one could use the same theoretical framework for studying contextual effects in both arenas. But because schools are a more widely shared social environment than families, one can ask an even more interesting question about the school as a social context. Earlier, we reviewed the fairly consistent age-related changes in various indicators of children's motivational orientation, interests, and activity involvement, particularly with regard to school-related achievement tasks. These changes are often interpreted as reflecting developmental changes that are going on within the individual (see Stipek & Mac Iver, 1989). However, such changes may also reflect systematic changes in the social contexts of schools.

School Transitions and Motivational Development

Despite sound theoretical reasons to expect that school transitions can influence children's motivation (see Eccles, Midgley, et al., 1984), until recently there has been little research on these effects. We consider various school transitions, but because most of the empirical work has focused on the junior high and middle school transition, we emphasize this transition.

Transition into Elementary School

Entrance into elementary school and then moving from kindergarten to first grade introduce several systematic changes in children's social worlds. First, classes are age stratified, making within-age ability social comparison much easier. Second, formal evaluations of competence by

"experts" begins. Third, formal ability grouping begins usually with reading group assignment. Fourth, peers have the opportunity to play a much more constant and salient role in children's lives. Each of these changes should impact children's motivational development. Such changes could contribute to the increase in children's response to failure feedback as they move from preschool and kindergarten into the first grade (Parsons & Ruble, 1972, 1977; Stipek & Hoffman, 1980). Parents' expectations for, and perceptions of, their children's academic competence are also influenced by report card marks and standardized test scores given out during the early elementary school years, particularly for mathematics (Alexander & Entwisle, 1988; Arbreton & Eccles, 1994). But more systematic studies of the effects of transition into elementary school, and transitions from kindergarten to first grade, on motivation are needed.

Significant long-term consequences are associated with children's experiences in the first grade, particularly with ability grouping and within-class differential teacher treatment. Teachers use varied information to assign first graders to reading groups including temperamental characteristics such as interest and persistence, race, gender, and social class (e.g., Alexander, Dauber, & Entwisle, 1993; Brophy & Good, 1974). Alexander et al. (1993) demonstrated that differences in first-grade reading group placement and teacher-student interactions have a significant effect (net of beginning differences in competence) on motivation and achievement several years later. Furthermore, these effects are mediated by both differential instruction and the exaggerating impact of ability group placement on parents' and teachers' views of the children's abilities, talents, and motivation (Pallas et al., 1994).

The Middle School Transition

There are substantial declines in academic motivation and achievement across the upper elementary and early secondary school years (see Anderman & Maehr, 1994; Eccles & Midgley, 1989; Eccles, Midgley, et al., 1993; Wigfield, Eccles, & Pintrich, 1996): School grades decline for many students as they move into junior high school (Simmons & Blyth, 1987). Similar declines occur for interest in school (Epstein & McPartland, 1976), intrinsic motivation (Harter, 1981), self-concepts/self-perceptions (Eccles et al., 1989; Wigfield et al., 1991), and confidence in one's intellectual abilities, especially following failure (Parsons & Ruble, 1977). There are also increases in test anxiety (Wigfield & Eccles, 1989), learned helpless responses to failure (Rholes et al., 1980), focus on ego goals rather than task mastery (Midgley et al., 1995), and both truancy and school dropout (Rosenbaum, 1976). Although these changes are not extreme for most adolescents, they are common enough to make us ask why (see Eccles & Midgley, 1989). Since academic failure and dropout are especially problematic among some ethnic groups and among youth from low-SES communities and families (e.g., Schneider & Coleman, 1993), it is probable that these groups are particularly likely to show these declines in academic motivation and self-perception as they move into and through the secondary school years.

A variety of explanations exist for these "negative" changes in academic motivation: Some point to the intrapsychic upheaval associated with early adolescent development. Others point the co-occurrence of multiple life changes: Simmons and Blyth (1987) attributed these declines, particularly among females, to the coincidence of the junior high school transition with pubertal development. Still others point to the nature of the junior high school environment itself. Extending person-environment fit theory (see Hunt, 1979) into a developmental perspective (stage-environment fit theory), Eccles and Midgley (1989) proposed that these negative motivational changes occur because traditional junior high schools do not provide developmentally appropriate educational environments for early adolescents. They suggested that different types of educational environments may be needed for different age groups to meet individual developmental needs and foster continued developmental growth. Exposure to the developmentally appropriate environment would facilitate both motivation and continued growth; in contrast, exposure to developmentally inappropriate environments, especially developmentally regressive environments, should create a particularly poor person-environment fit, leading to declines in motivation as well as detachment from the goals of the institution.

This analysis suggests several questions. First, what are the developmental needs of the early adolescent? Second, what kinds of educational environment are developmentally appropriate for meeting these needs and stimulating further development? Third, what are the most common school environmental changes before and after the transition to middle or junior high school? Fourth, and most importantly, are these changes compatible with the physiological, cognitive, and psychological changes early adolescents are

experiencing? Or is there a developmental mismatch between maturing early adolescents and the classroom environments they experience before and after the transition to middle or junior high school that results in a deterioration in academic motivation and performance for some children?

Eccles and Midgley (1989) argued that there are developmentally inappropriate changes at the junior high or middle school in a cluster of classroom organizational, instructional, and climate variables, including task structure, task complexity, grouping practices, evaluation techniques, motivational strategies, locus of responsibility for learning, and quality of teacher-student and student-student relationships. They hypothesized that these changes contribute to the negative change in early adolescents' motivation and achievement-related beliefs. Evaluating these hypotheses is difficult because, until recently, there have been so few studies of differences in the classroom or school environment across grades or school levels. Most relevant descriptions have focused on school level characteristics such as school size, degree of departmentalization, and extent of bureaucratization. For example, Simmons and Blyth (1987) pointed out that most junior high schools are substantially larger (by several orders of magnitude) than elementary schools and instruction is more likely to be organized departmentally. As a result, junior high school teachers typically teach several different groups of students, making it very difficult to form a close relationship with any school-affiliated adult at precisely the point in development when there is a great need for guidance and support from nonfamilial adults. Such changes in student-teacher relationships are also likely to undermine the sense of community and trust between students and teachers, leading to a lowered sense of efficacy among the teachers, an increased reliance on authoritarian control practices by the teachers, and an increased sense of alienation among the students. Finally, such changes are likely to decrease the probability that any particular student's difficulties will be noticed early enough to get the student necessary help, thus increasing the likelihood that students on the edge will be allowed to slip onto negative motivational and performance trajectories leading to increased school failure and dropout.

These structural changes are also likely to affect classroom dynamics, teacher beliefs and practices, and student alienation and motivation in the ways proposed by Eccles and Midgley (1989). Some support for these predictions is emerging, along with evidence of other motivationally relevant systematic changes (e.g., Ward et al., 1982).

Authority Relationships. Despite the increasing maturity of students, junior high school classrooms, compared with elementary school classrooms, are characterized by a greater emphasis on teacher control and discipline, and fewer opportunities for student decision making, choice, and self-management (e.g., Midgley & Feldlaufer, 1987; Moos, 1979). Junior high school teachers spend more time maintaining order and less time actually teaching than elementary school teachers (Brophy & Everston, 1976). Similarly, sixth-grade elementary school math teachers report less concern with controlling and disciplining their students than these same students' seventh-grade junior high school math teachers reported one year later (Midgley, Feldlaufer, & Eccles, 1988).

Similar differences emerge on indicators of student opportunity to participate in decision making regarding their own learning. For example, Midgley and Feldlaufer (1987) reported that both seventh graders and their teachers in the first year of junior high school indicated less opportunity for students to participate in classroom decision making than did these same students and their sixth-grade elementary school teachers one year earlier. In addition, Midgley and Feldlaufer (1987) found a greater discrepancy between the adolescents' desire for participation in decision making and their perception of the opportunities for such participation when the adolescents were in their first year in junior high school than when these same adolescents were in their last year in elementary school, leading to a decline in the fit between the adolescents' desire for autonomy and their perception of the extent to which their school affords them opportunities to exchange in autonomous behavior over this school transition. And, as predicted by Eccles and Midgley (1989), this mismatch predicted the decline in adolescents' intrinsic motivation and interest in school (Mac Iver & Reuman, 1988).

Affective Relationships. Junior high school classrooms are also characterized by less positive teacher/student relationships than elementary school classrooms (Midgley et al., 1988; Trebilco, Atkinson, & Atkinson, 1977). Given the association of classroom climate and student motivation reviewed earlier, it is not surprising that this transition into a less supportive classroom impacts negatively on early adolescents' interest in the subject

matter being taught in that classroom, particularly among low-achieving students (Midgley, Feldlaufer, & Eccles, 1989b).

Teacher Efficacy. Junior high school teachers also feel less effective as teachers, especially for low-ability students (Midgley et al., 1988). Given the association of teacher efficacy and students' beliefs, attitudes, motivation, and achievement (Ashton, 1985; Brookover et al., 1979), it is again not surprising that these differences in teachers' sense of efficacy before and after the transition to junior high school predicted the decline in early adolescents,' particularly low-achieving adolescents,' beliefs about their academic competency and potential (Midgley, Feldlaufer, & Eccles, 1989a).

Organization of Instruction. The shift to junior high school is also associated with an increase in practices such as whole class task organization, and between-classroom ability grouping (see Eccles & Midgley, 1989; Rounds & Osaki, 1982); these changes are likely to increase social comparison, concerns about evaluation, and competitiveness (see Rosenholtz & Simpson, 1984). They also increase the likelihood that teachers will use normative grading criteria and more public forms of evaluation, both of which are likely to impact negatively on many early adolescents' self-perceptions and motivation. Finally, these changes also make aptitude differences more salient to both teachers and students, likely leading to increased teacher expectancy effects and decreased feelings of efficacy among teachers and increased entity rather than incremental views of ability. These predictions need to be tested.

Cognitive Level of Academic Content. Surprisingly, there is also evidence that classwork during the first year of junior high school requires lower level cognitive skills than classwork at the elementary level. One rationale often given for the large, departmentalized junior high school system is its efficiency in providing early adolescents with higher level academic work. Two assumptions are implicit in this argument: (a) More formal, departmentalized teaching is conducive to the learning of higher-order cognitive processes; and (b) children in junior high school are getting higher-order learning tasks in their departmentalized courses. Both of these assumptions are being questioned. In one observational study of 11 junior high school science classes, only a very small proportion of tasks required higher-level creative or expressive skills; the most frequent activity involved copying answers from the board or textbook onto worksheets (Mitman, Mergendoller, Packer, & Marchman, 1984; see also Walberg, House, & Steele, 1973). No one has researched the impact of this decline in the cognitive demands placed on students' motivation, but it is likely to be negative based on the importance of challenging, engaging material for positive motivation.

Grading Practices. There is no stronger predictor of students' self-confidence and efficacy than the grades they receive. If grades change, there should be a concomitant shift in the adolescents' self-perceptions and academic motivation. Junior high school teachers use stricter and more social comparison-based standards than elementary school teachers to assess student competency and to evaluate student performance, leading to a drop in grades for many early adolescents as they make the junior high school transition (Eccles & Midgley, 1989; Finger & Silverman, 1966; Simmons & Blyth, 1987). Importantly, this decline in grades is not matched by a decline in the adolescents' scores on standardized achievement tests, suggesting that the decline reflects a change in grading practices rather than a change in the rate of the students' learning. Simmons and Blyth (1987) documented the negative impact of this grade drop on subsequent school performance and dropout, even controlling for a youth's performance prior to the school transition.

Motivational Goals. Several of the previously noted changes are linked together in goal theory: Classroom practices related to grading practices, support for autonomy, and instructional organization affect the relative salience of mastery versus performance goals that students adopt as they engage in the learning tasks at school. The changes associated with the middle school transition should precipitate greater focus on performance goals. In support of this, in Midgley et al. (1995), both teachers and students reported that performance-focused goals were more prevalent and task-focused goals less prevalent in middle school classrooms than in elementary school classrooms. In addition, the elementary school teachers reported using task-focused instructional strategies more frequently than did the middle school teachers. Finally, at both grade levels, the extent to which teachers were task-focused predicted the students' and the teachers' sense of personal efficacy. Not surprisingly, personal efficacy was lower

nong the middle school participants than among the ele-entary school participants.

ummary

hanges such as those just reviewed are likely to have a gative effect on many children's motivational orienta-n toward school at any grade level. But Eccles and idgley (1989) argued that these types of school environ-ental changes are particularly harmful at early adoles-nce. Evidence from several sources suggests that early olescent development is characterized by increases in sire for autonomy, peer orientation, self-focus and self-nsciousness, salience of identity issues, concern over erosexual relationships, and capacity for abstract cog-ive activity (see Brown, 1990; Eccles & Midgley, 1989; rter, 1990; Keating, 1990; Simmons & Blyth, 1987). mmons and Blyth argued that adolescents need safe, effectually challenging environments to adapt to these fts. In light of these needs, the environmental changes ociated with transition to junior high school seem ecially harmful in that they emphasize competition, so- comparison, and ability self-assessment at a time of ghtened self-focus; they decrease decision making and ice at a time when the desire for control is growing; y emphasize lower level cognitive strategies at a time en the ability to use higher level strategies is increas- and they disrupt social networks at a time when ado-ents are especially concerned with peer relationships may be in special need of close adult relationships side the home. Consequently, these environmental nges, coupled with the normal course of individual de-pment, are likely to result in a poor "fit" between y adolescents and their classroom environment, in-sing the risk of negative motivational outcomes, espe-y for low-achieving adolescents. An important future is to assess how common and general these mis-ches between school environments and early adoles- development are across different kinds of educational ngs, different regions of the country, and different ps of early adolescents.

High School Transition

ough there is less work on the transition to high school, xisting work is suggestive of similar problems (Jencks own, 1975; Wehlage, 1989). High schools are typically larger and more bureaucratic than junior high schools and middle schools. Bryk, Lee, and Smith (1989) provide numerous examples of how the sense of community among teachers and students is undermined by the size and bureaucratic structure of most high schools. There is little opportunity for students and teachers to get to know each other and, likely as a consequence, there is distrust between them and little attachment to a common set of goals and values. There is also little opportunity for students to form mentor relationships with a nonfamilial adult and little effort is made to make instruction relevant to the students. Such environments are likely to further undermine the motivation and involvement of many students, especially those not doing particularly well academically, those not enrolled in the favored classes, and those who are alienated from the values of the adults in the high school. These hypotheses need to be tested.

Most large public high schools also organize instruction around curricular tracks that sort students into different groups. As a result, there is even greater diversity in the educational experiences of high school students than of middle school students; and this diversity is often associated more with the students' social class and ethnic group than with differences in the students' talents and interests (Lee & Bryk, 1989). As a result, curricular tracking has served to reinforce social stratification rather than foster optimal education for all students, particularly in large schools (Dornbusch, 1994; Lee & Bryk, 1989). Lee and Bryk documented that average school achievement levels do not benefit from this curricular tracking. Quite the contrary—evidence comparing Catholic high schools with public high schools suggests that average school achievement levels are increased when all students are required to take the same challenging curriculum. This conclusion is true even after one has controlled for student selectivity factors. A more thorough examination of how the organization and structure of our high schools influence cognitive, motivational, and achievement outcomes is needed.

PEERS AND MOTIVATION

How might peers affect motivation and achievement? Researchers focus on the role of social comparison in self-evaluation, the link between social competence and school motivation/achievement, peers as colearners, the reinforcing and socializing mechanism within peer groups, and the coordination of multiple goals.

Social Comparison and Self-Evaluation

Much of the recent work has focused on children's use of peer comparison to gauge the acceptability of their beliefs and behaviors, and to evaluate their ability levels (see Reuman, 1989; Ruble, 1983; Suls & Sanders, 1982). This work shows both individual differences and age differences in people's motives for social comparison, the extent to which they engage in social comparison, and who is used for comparison. Older children use social comparison more often and more efficiently to evaluate their ability levels (e.g., Ruble, 1983; Suls & Sanders, 1982; Veroff, 1969). Ruble (1994) has also suggested that social comparison may increase during transitional phases in one's life such as the school transitions discussed earlier, making children especially vulnerable to the motivational consequences of such comparisons during these transitions. Researchers interested in adolescent development (see Brown, 1990; Fuligni & Eccles, 1993; Youniss, 1980) also suggest that early adolescents may be especially vulnerable to peer-based social comparison processes as they try to cope with this transitional phase. Cultural background (either in terms of gender or ethnic group) also likely influences the extent and the type of social comparison, but this possibility needs more attention. Finally, as noted earlier, social comparison processes are very sensitive to social context, particularly those linked to classroom experiences.

Social Competence and Motivation

There has been a long history of work focused on the relation between social competence and academic success. Much of this work has documented that children who are accepted by their peers and who have good social skills do better in school and have more positive academic achievement motivation; in contrast, socially rejected and highly aggressive children are at risk for numerous negative motivationally relevant outcomes (e.g., Asher & Coie, 1990; Green, Forehand, Beck, & Vosk, 1980; Hinshaw, 1992; Ladd & Price, 1987; Parker & Asher, 1987; Wentzel, 1991b, 1993; Wentzel, Weinberger, Ford, & Feldman, 1990). Further, social competence and social support can help ease school transitions (Ladd, 1990). The exact mechanisms underlying these associations are just beginning to be studied. Some suggest that the association represents the influence of some underlying form of inherited intelligence or temperament/motivational orientation that facilitates the acquisition of both social and academic competence (e.g., Keogh, 1986; Martin, Drew, Gaddis, & Moseley, 1988). In support, similar socialized characteristics are significantly related to competence in both domains; these characteristics include a high sense of social responsibility (Wentzel, 1991b), a moral commitment to conventional forms of success (Hart, Yates, Fegley, & Wilson, in press), and good self-regulatory skills (Ford, 1982). A second hypothesized mechanism is based on the link between social support and mental health (Berndt, 1989; Fine & Zane, 1989): Children should be able to focus more of their attention on learning if they feel socially supported and well liked by both their peers and the adults in their learning context and if they feel that they belong (Goodenow, 1993; Ladd, 1990; Wehlage et al., 1989). They may also place more value on learning in such a context.

Peers as Colearners

The extensive work on the advantages of cooperative learning provides another link between peers and motivation. In this work, the role of peers as colearners is stressed. First, doing learning activities in a social context is usually more fun and, thus, more intrinsically interesting (Slavin, 1990; Stevens & Slavin, 1995). Peers can also help each other understand and learn the material through group discussion, sharing of resources, and modeling of academic skills, and by interpreting and clarifying the tasks for each other (Schunk, 1987; Sieber, 1979). Each of these characteristics should influence achievement through its impact on children's expectations for success, their valuing of the activity, and their focus on learning rather than performance goals.

Cooperative learning has been used to facilitate positive peer social interactions in classrooms (see Slavin, 1990). Cooperative learning arrangements may also affect motivation by reducing socially isolation and, thus, mitigating the effects of peer rejection and lack of belonging on students' academic motivation.

Peer Group Influences

Much of the classic work on peer influences on school achievement focused on the negative effects of peer groups on adolescents' commitment to doing well in school (e.g., Goodlad, 1984). More recently, investigators have also investigated the specific mechanisms by which peer groups can have either a positive or negative affect on motivation across various activity settings. These researchers have

found that children cluster together in peer groups sharing similar motivational orientations and activity preferences and that such clustering reinforces and strengthens existing motivational orientation and activity preferences over time (e.g., Ball, 1981; Berndt & Keefe, in press; Berndt, Laychak, & Park, 1990; Epstein, 1983; Kindermann, McCollam, & Gibson, in press; Youniss, 1980). Whether such effects are positive or negative depends on the peer group's motivational orientation. High-achieving children who seek out other high achievers as friends develop even more positive academic motivation over time. In contrast, low achievers who join a low-achieving peer group should become even less motivated to do school work and more motivated to engage in other activities more consistent with their peer group's values (see Brown, 1990; Kindermann, 1993; Kindermann et al., in press).

The role of peer group influences is likely to vary across ages, with peers having an especially important role vis-à-vis motivation and achievement during adolescence. Adolescents are more aware of, and concerned about, peer group acceptance and spend much more unsupervised time with peer groups than do younger children. Consequently, adolescents should be especially vulnerable to peer group influences on their goals, interests, and values. In addition, however, the potential negative impact of peers may be especially problematic for some adolescents' academic achievement motivation: Early adolescents rate social activities as very important and more enjoyable than most other activities, particularly academic activities (Eccles et al., 1989; Wigfield et al., 1991). Furthermore, early adolescents' physical appearance and social acceptance are more important predictors of their general self-esteem than their perceptions of their cognitive competence (Harter, 1990). Consequently, to the extent that one's peer group devalues academic achievement relative to other goals and activities, adolescents should shift their focus away from academic pursuits to maintain peer acceptance. Finally, given other changes associated with adolescent development, it is quite likely that a substantial number of adolescents will be recruited into such a peer group.

The work by Stattin and Magnusson (e.g., 1990) provides a good example of this process. The early maturing young women in their study were particularly likely to be recruited early into heterosocial peer groups and activities. Because these females looked sexually mature, they were more likely to become involved with older male peers who interacted with them in a gender-role stereotypic manner. As these young women got caught up in this peer social system, they shifted their attention away from academic activities and into heterosocial activities and roles, and, as a result, lowered their educational aspirations and the value they attached to academic pursuits. Consequently, they obtained less education than predicted based on their prepubertal academic performance and motivation. Instead, they often married and became parents earlier than their other female classmates.

The work on the institutional consequences of ability grouping provides a similar example. Several researchers (e.g., Dreeban & Barr, 1988; Eder & Felmlee, 1984) have suggested that ability grouping influences motivation and achievement, in part, by its influence on one's peer group. The evidence of this effect is mixed for the elementary school years. But it is more likely to be true in the adolescent years when between-class ability grouping and curricular tracking become more common. These institutional practices result in much greater segregation of peer groups based the courses they are taking (Fuligni et al., 1995; Rosenbaum, 1980; Vanfossen, Jones, & Spade, 1987). Consequently, there should be greater evidence of social stratification effects of ability grouping on students' motivation during the high school years.

Peers' Role in the Coordination of Multiple Goals

The work by Magnusson and Stattin also illustrates the importance of coordinating multiple goals. Coordinating multiple goals is part of motivational management and choice. Peers can play a central role in this process by making various goals and motivational states more or less salient and more or less desirable. Adolescence is an ideal time in which to observe these dynamics. Such processes have been suggested as one reason for ethnic group differences in school achievement based on the assumption that some groups receive less peer support for academic achievement than affluent European American youth (e.g., Fordham & Ogbu, 1986; Willis, 1977). Steinberg, Dornbusch, and Brown (1992) concluded that both the lower performance of African Americans and Hispanics and the higher performance of Whites and Asians are due more to ethnic differences in peer support for academic achievement than ethnic differences in either the value parents attach to education or the youths' beliefs regarding the likely occupational payoff for academic success. Even though the adolescents in each of these groups reported strong support for school achievement from their parents, the Hispanic and African American students reported less

support for school achievement among their peers than either the European American or Asian American students, resulting in less congruence between parents and peers in the valuing of school achievement. Some African Americans in this study indicated that they have difficulty finding a peer group that will encourage them to comply with their parents' valuing of educational success and that they need to be very careful in selecting which of their African American peers to have as close friends. The European American and Asian American students were much less likely to report this kind of peer dilemma.

CROSS-CONTEXT INFLUENCES

Just as there has been an increase in attention to managing multiple goals in studies of the psychology of individual motivation, so too there has been an increase in attention to the interaction between multiple contexts on motivation. Several examples of this type of work were noted in discussing how experiences at home and with one's peers can explain variations in motivation at school. Until recently, this work has tended to be fairly simplistic, focusing on unidirectional causal models of the influence of experiences in one context (usually the family) on motivation in another context (usually the school). But in the past several years, there has been a dramatic increase in studies based on more complex models. For example, consider the growing body of work on school-family connections (see Coleman, 1987; Eccles & Harold, 1993, in press; Epstein, 1992). Epstein and her colleagues (e.g., see Epstein, 1992) pioneered this field by focusing attention on the inadequate job schools do to help parents, particularly non-White and poor parents, play an effective role in their children's education. They documented both the minimal attention many schools pay to supporting family involvement and the power of such attention for fostering and maintaining student motivation when it is available (cf., Kagen, 1989; Lightfoot, 1978; Zigler & Turner, 1982).

The role that teachers play in shaping parents' impression of their children's competencies is another example of these cross-context dynamics. We have already discussed how report cards influence parents' view of their children's competencies and motivation, but Epstein's work shows that even this effect varies depending on the larger communication context between the school and the family. When teachers attempt, systematically and frequently, to inform parents of academic progress, parents develop a better understanding of the nature and difficulty of tasks that need to be accomplished as well as their children's academic performance and motivation. In addition, the extent to which teachers try to involve parents in the learning process by sending home assignments to be completed jointly or by having parents check homework affects what parents know about school tasks and about their children's strengths and weaknesses. These practices should influence children's motivation if the parents use the information to help their children master new material or overcome difficulties, and if parents acknowledge and reward children's progress. Finally, the extent to which the schools provide the parents with adequate information about the consequences of various curricular decisions that adolescents and their parents must make during the secondary school years will have a major impact on the educational and occupational options available to the adolescents. There is ample evidence that secondary schools do a very bad job at this type of communication (Dornbusch, 1994; Eccles & Harold, in press). As a consequence, females and minority group adolescents often end up in courses that severely limit their subsequent options.

CONCLUSION

In this chapter, we have reviewed a wide range of topics related to motivation, particularly academic achievement motivation. The view of motivation has changed dramatically over the last half of the 20th century, going from a biologically based drive perspective to a behavioral-mechanistic perspective, and then to a cognitive-mediational/constructivist perspective. The conception of the individual as a purposeful, goal-directed actor who must coordinate multiple goals and desires across multiple contexts within both short- and long-range time frames currently is prominent. As we approach the 21st century, the role of affect and less conscious processes is reemerging as a central theme. Complementing this more complex view of the psychology of motivation, researchers interested in the contextual influences on motivation are also adopting more complex and multicontextual frameworks. These frameworks are guiding both basic research agendas and policy-focused reform efforts. We find these new perspectives quite exciting and look forward to the next 10 years of research on motivation.

Many basic issues still need to be resolved, and have been discussed throughout this chapter. In closing, we highlight the issues we think deserve immediate attention

foremost, there continues to be a proliferation of constructs particularly with regard to the social cognitive aspects of motivation. Many of these constructs deal with competence and control. It is now time to integrate this array. We have outlined what we see as the major constructs as well as the overlap among the many instantiations of these constructs. We encourage other scholars to continue this effort at theoretical integration (see Ford, 1992, for one such effort).

Along with integrating this array of constructs, it also is crucial to expand our social cognitive models of motivation to include other constructs. The highest priority in this area is attention to the influence of emotions on motivation. Attribution theorists have moved to incorporate emotion into their models by linking emotional reactions to cognitive causal appraisals. Other conceptualizations of the link between emotion and motivation are needed. Some cognitive theorists (e.g., Pintrich et al., 1993) are going beyond "cold" models of conceptual change to include both affective and motivational processes; motivation theorists need to go beyond cold, rational models of motivation as well.

Equally important is the need for continuing work on the connection between motivational and cognitive processes. For example, how does interest actually affect strategy use, learning, and performance? Although there has been substantial headway on such questions, more work is needed if we are to make both theoretical and applied progress.

Turning to some methodological issues, we have seen a dramatic increase in the number of available measures of motivation (particularly self-report measures) over the last 20 years. Although this has increased the tools available, it has also contributed to the emergence of a vast literature that is difficult to integrate because there are so many different measures for quite similar constructs. The field would be better served if researchers spent less time generating slight variations on similar constructs and more time on fundamental theory development. Further, if new measures are to be developed, more attention should be paid to assessing motivation using different methods than the typical self-reports. The experience sampling methodology used by Csikszentmihalyi and his colleagues in which participants report on their ongoing states is an interesting example.

A critically important theoretical and methodological issue that is still being debated is the domain specificity of motivational processes. Some theorists argue that motivational constructs such as ability self-concepts and personal efficacy are quite domain specific and should be studied at that level. Bandura (1994), for example, has criticized global measures of personality traits and motivational constructs like locus of control because they are too general to predict specific behaviors very well. He made similar critical comments about Harter's (1990) perceived competence scales. Other researchers focus on more global and/or trait-like aspects of motivation. For example, researchers interested in anxiety tend to think of this characteristic as more cross-situational (e.g., Freedman-Doan, 1994; Wigfield & Eccles, 1989). It is likely that some aspects of motivation operate at a general level, whereas other aspects operate at a quite specific level. Work is needed to determine which is which.

Regarding socialization and contextual issues, researchers need to assess in more detail the influences of the transition into elementary school, and the transition from middle to high school, on children's motivation. Such studies should focus on the characteristics of particular school environments that might influence children's adjustments at these transitions points. This research will require complex longitudinal designs. Finally, as Western society becomes more diverse and connections among different parts of the world become stronger, we need to continue to assess motivation in different ethnic groups, and evaluate whether current theory adequately addresses motivation across these groups.

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REFERENCES

Alexander, K. L., Dauber, S. L., & Entwisle, D. R. (1993). First-grade classroom behavior: Its short- and long-term consequences for school performance. *Child Development, 64,* 801–803.

Alexander, K. L., & Entwisle, D. R. (1988). Achievement in the first two years of school: Patterns and processes. *Monographs of the Society for Research in Child Development, 53*(2, Serial No. 218).

Alexander, K. L., Entwisle, D. R., & Dauber, S. L. (1994). *On the success of failure: A reassessment of the effects of retention in the primary grades.* Cambridge, MA: Cambridge University Press.

Alexander, P. A., Kulikowich, J. M., & Jetton, T. L. (1994). The role of subject-matter knowledge and interest in the processing of linear and nonlinear texts. *Review of Educational Research, 64,* 201–252.

Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The Work Preference Inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology, 66,* 950–967.

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84,* 261–271.

Ames, C., & Ames, R. (Eds.). (1989). *Research on motivation in education: Vol. 3. Goals and cognitions.* San Diego: Academic Press.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology, 80,* 260–267.

Anderman, E. M., & Maehr, M. L. (1994). Motivation and schooling in the middle grades. *Review of Educational Research, 64,* 287–309.

Anderson, R. C., Shirey, L. L., Wilson, P. T., & Fielding, L. G. (1987). Interestingness of children's reading material. In R. E. Snow & M. J. Farr (Eds.), *Aptitude, learning, and instruction: Vol. 3. Conative and affective process analyses* (pp. 287–299). Hillsdale, NJ: Erlbaum.

Andrews, G. R., & Debus, R. L. (1978). Persistence and the causal perception of failure: Modifying cognitive attributions. *Journal of Educational Psychology, 70,* 154–166.

Arbreton, A. J. A., & Eccles, J. S. (1994). *Mother's perceptions of their children during the transition from kindergarten to formal schooling: The effect of teacher evaluations on parents' expectations for their early elementary school children.* Paper presented at the meeting of the American Educational Research Association Conference, New Orleans, LA.

Arbreton, A. J. A., Eccles, J. S., & Harold, R. D. (1994). *Parents' perceptions of their children's competence: The role of parents' attributions.* Paper presented at the meeting of the Society for Research on Adolescence, San Diego.

Asher, S. R., & Coie, J. D. (Eds.). (1990). *Peer rejection in childhood.* New York: Cambridge University Press.

Ashton, P. (1985). Motivation and the teacher's sense of efficacy. In C. Ames & R. Ames (Eds.), *Research on motivation in education: Vol. 2. The classroom milieu* (pp. 141–171). Orlando, FL: Academic Press.

Assor, A., & Connell, J. P. (1992). The validity of students' self-reports as measures of performance affecting self-appraisals. In D. H. Schunk & J. L. Meece (Eds.), *Student self-perceptions in the classroom* (pp. 25–47). Hillsdale, NJ: Erlbaum.

Atkinson, J. W. (1964). *An introduction to motivation.* Princeton, NJ: Van Nostrand.

Atkinson, J. W. (1966). Motivational determinants of risk taking behavior. In J. W. Atkinson & N. T. Feather (Eds.), *A theory of achievement motivation* (pp. 11–31). New York: Wiley.

Ball, S. J. (1981). *Beachside comprehensive: A case-study of secondary schooling.* Cambridge, England: Cambridge University Press.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1994). *Self-efficacy: The exercise of control.* New York: Freeman.

Barber, B., & Eccles, J. S. (1992). A developmental view of the impact of divorce and single parenting on children and adolescents. *Psychological Bulletin, 111,* 108–126.

Batson, C. D., & Johnson, A. (1976). Arousing intrinsic motivation as a goal for introductory classes: A case study. *Teaching of Psychology, 3,* 155–159.

Battle, E. (1965). Motivational determinants of academic task persistence. *Journal of Personality and Social Psychology, 2,* 209–218.

Battle, E. (1966). Motivational determinants of academic competence. *Journal of Personality and Social Psychology, 4,* 534–642.

Baumert, J. (1995, April). *Gender, science interest, teaching strategies and socially shared beliefs about gender roles in 7th graders—a multi-level analysis.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monograph, 4*(1, Pt. 2).

Becker, B. J., & Hedges, L. V. (1992). *A review of the literature on the effectiveness of Comer's school development program.* A report to the Rockefeller Foundation.

Bell, L. A. (1989). Something's wrong here and it's not me: Challenging the dilemmas that block girls success. *Journal for the Education of the Gifted, 12,* 118–130.

Benjamin, M., McKeachie, W. J., & Lin, Y.-G. (1987). Two types of test anxious students: Support for an information processing model. *Journal of Educational Psychology, 59,* 128–132.

Benware, C. A., & Deci, E. L. (1984). Quality of learning with an active versus passive motivational set. *American Educational Research Journal, 21,* 755–765.

Berlyne, D. E. (1949). Interest as a psychological concept. *British Journal of Psychology, 39,* 184–195.

Berlyne, D. E. (1967). Arousal and reinforcement. In D. Levine (Ed.), *Nebraska Symposium on Motivation* (pp. 1–110). Lincoln: University of Nebraska Press.

Berndt, T. J. (1989). Friendships in childhood and adolescence. In W. Damon (Ed.), *Child development today and tomorrow* (pp. 332–348). San Francisco: Jossey-Bass.

Berndt, T. J., & Keefe, K. (in press). Friends' influence on adolescents' adjustment to school. *Child Development.*

Berndt, T. J., Laychak, A. E., & Park, K. (1990). Friends' influence on adolescents' academic achievement motivation: An experimental study. *Journal of Educational Psychology, 82*(4), 664–670.

Berry, G. L., & Asamen, J. K. (Eds.). (1989). *Black students: Psychosocial issues and academic achievement.* Newbury Park, CA: Sage.

Beyer, S. (1995). Maternal employment and children's academic achievement: Parenting styles as mediating variable. *Developmental Review, 15,* 212–253.

Bijou, S. W., & Baer, D. M. (1961). *Child development. Vol. I. A systematic and empirical theory.* New York: Appleton-Century-Crofts.

Bledsoe, J. (1967). Self-concept of children and their intelligence, achievement, interests, and anxiety. *Childhood Education, 43,* 436–438.

Blumenfeld, P. C. (1992). Classroom learning and motivation: Clarifying and expanding goal theory. *Journal of Educational Psychology, 84,* 272–281.

Blumenfeld, P., Hamilton, V. L., Bossert, S., Wessels, K., & Meece, C. (1983). Teacher talk and student thought: Socialization into the student role. In J. Levine & U. Wang (Eds.), *Teacher and student perceptions: Implications for learning.* Hillsdale, NJ: Erlbaum.

Blumenfeld, P., Pintrich, P. R., Meece, J., & Wessels, K. (1982). The formation and role of self-perceptions of ability in elementary school classrooms. *Elementary School Journal, 82,* 401–420.

Blumenfeld, P., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdail, M., & Palincsar, A. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. *Educational Psychologist, 26,* 369–398.

Boggiano, A. K., & Katz, P. (1991). Maladaptive achievement patterns in students: The role of teacher's controlling strategies. *Journal of Social Issues, 47,* 35–51.

Boggiano, A. K., Main, D. S., & Katz, P. A. (1987). Children's preference for challenge: The role of perceived competence and control. *Journal of Personality and Social Psychology, 54,* 134–141.

Boggiano, A. K., Shields, A., Barrett, M., Kellam, T., Thompson, E., Simons, J., & Katz, P. (1992). Helplessness deficits in students: The role of motivational orientation. *Motivation and Emotion, 16,* 271–296.

Borkowski, J. G., Carr, M., Relliger, E., & Pressley, M. (1990). Self-regulated cognition: Interdependence of metacognition, attributions, and self-esteem. In B. Jones & L. Idol (Eds.), *Dimensions of thinking and cognitive instruction* (Vol. 1). Hillsdale, NJ: Erlbaum.

Borkowski, J. G., & Muthukrisna, N. (1995). Learning environments and skill generalization: How contexts facilitate regulatory processes and efficacy beliefs. In F. Weinert & W. Schneider (Eds.), *Recent perspectives on memory development.* Hillsdale, NJ: Erlbaum.

Borkowski, J. G., & Thorpe, P. K. (1994). Self-regulation and motivation: A life-span perspective on underachievement. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance.* Hillsdale, NJ: Erlbaum.

Borkowski, J. G., Weyhing, R. S., & Carr, M. (1988). Effects of attributional retraining on strategy-based reading comprehension in learning-disabled student. *Journal of Educational Psychology, 80,* 46–53.

Brookover, W., Beady, C., Flood, P., Schweitzer, J., & Wisenbaker, J. (1979). *School social systems and student achievement: Schools can make a difference.* New York: Praeger.

Brooks-Gunn, J. Guo, G., & Furstenberg, F. F., Jr. (1993). Who drops out of and who continues beyond high school? A 20-year follow up of black urban youth. *Journal of Research on Adolescence, 3,* 271–294.

Brophy, J. E. (1987). Socializing student motivation to learn. In M. L. Maehr & D. Kleiber (Eds.), *Advances in motivation and achievement* (Vol. 5). Greenwich, CT: JAI Press.

Brophy, J. E., & Evertson, C. M. (1976). *Learning for teaching: A developmental perspective.* Boston: Allyn & Bacon.

Brophy, J. E., & Good, J. L. (1974). *Teacher-student relationships.* New York: Holt, Rinehart and Winston.

Brown, B. B. (1990). Peer groups and peer culture. In S. S. Feldman & G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 171–196). Cambridge, MA: Harvard University Press.

Bryk, A. S., Lee, V. E., & Holland, P. B. (1993). *Catholic schools and the common good.* Cambridge, MA: Harvard University Press.

Bryk, A. S., Lee, V. E., & Smith, J. B. (1989, May). *High school organization and its effects on teachers and students: An interpretative summary of the research.* Paper presented at the invitational conference on Choice and Control in American Education: Robert M. La Follette Institute of Public Affairs, University of Wisconsin-Madison.

Bullock, M. (Ed.). (1991). *The development of intentional action. Cognitive, motivational, and interactive processes: Vol. 22. Contributions to human development.* Basel: Karger Press.

Bullock, M., & Lutkenhaus, P. (1988). The development of volitional behaviors in the toddler years. *Child Development, 59,* 664–674.

Burhans, K. K., & Dweck, C. S. (1995). Helplessness in early childhood: The role of contingent worth. *Child Development, 66,* 1719–1738.

Butler, R. (1989a). Interest in the task and interest in peers' work: A developmental study. *Child Development, 60,* 562–570.

Butler, R. (1989b). Mastery versus ability appraisal: A developmental study of children's observations of peers' work. *Child Development, 60,* 1350–1361.

Butler, R. (1990). The effects of mastery and competitive conditions on self-assessment at different ages. *Child Development, 61,* 201–210.

Butler, R. (1993). Effects of task- and ego-achievement goals on information seeking during task engagement. *Journal of Personality and Social Psychology, 65,* 18–31.

Butler, R., & Ruzany, N. (1993). Age and socialization effects on the development of social comparison motives and normative ability assessments in kibbutz and urban children. *Child Development, 64,* 532–543.

Cameron, J., & Pierce, W. D. (1994). Reinforcement, reward, and intrinsic motivation: A meta-analysis. *Review of Educational Research, 64,* 363–423.

Carnegie Council on Adolescent Development. (1989). *Turning points: Preparing American youth for the 21st century.* Washington, DC.

Carr, M., & Borkowski, J. G. (1989). Culture and the development of the metacognitive system. *Zeitschrift fur Pedagogische Psychologie, 3,* 219–228.

Carr, M., Borkowski, J. G., & Maxwell, S. E. (1991). Motivational components of underachievement. *Developmental Psychology, 27,* 108–118.

Carter, H. D. (1940). The development of vocational attitudes. *Journal of Consulting Psychology, 4,* 181–191.

Casserly, P. (1980). An assessment of factors affecting female participation in advanced placement programs in mathematics, chemistry, and physics. In L. Fox, I. Brody, & D. Tobin (Eds.), *Women and the mathematical mystique* (pp. 138–163). Baltimore: Johns Hopkins University Press.

Cauce, A. M., Comer, J. P., & Schwartz, D. (1987). Long term effects of a systems oriented school prevention program. *American Journal of Orthopsychiatric Association, 57,* 127–131.

Chance, J. E. (1961). Independence training and first graders' achievement. *Journal of Consulting Psychology, 25,* 149–154.

Chen, C., & Stevenson, H. W. (1995). Motivation and mathematics achievement: A comparative study of Asian-American, Caucasian-American, and East Asian high school students. *Child Development, 66,* 1215–1234.

Clark, R. (1983). *Family life and school achievement: Why poor black children succeed or fail.* Chicago: University of Chicago Press.

Coleman, J. S. (1987). Families and schools. *Educational Researcher, 16,* 32–38.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity.* Washington, DC: U.S. Government Printing Office.

Connell, J. P. (1985). A new multidimensional measure of children's perception of control. *Child Development, 56,* 1018–1041.

Connell, J. P., Halpern-Felsher, B. L., Clifford, E., Crichlow, W., & Usinger, P. (1995). Hanging in there: Behavioral, psychological, and contextual factors affecting whether African-American adolescents stay in high school. *Journal of Adolescent Research, 10,* 41–63.

Connell, J. P., Spencer, M. B., & Aber, J. L. (1994). Educational risk and resilience in African American Youth: Context, self, and action outcomes in school. *Child Development, 65,* 493–506.

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In R. Gunnar & L. A. Sroufe (Eds.), *Minnesota Symposia on Child Psychology* (Vol. 23, pp. 43–77). Hillsdale, NJ: Erlbaum.

Connor, J. M., Schackman, M., & Serbin, L. A. (1978). Sex-related differences in response to practice on a visual-spatial test and generalization to a related test. *Child Development, 49,* 24–29.

Cooper, H., & Dorr, N. (1995). Race comparisons on need for achievement: A meta-analytic alternative to Graham's narrative review. *Review of Educational Research, 65,* 483–508.

Corno, L. (1989). Self-regulated learning: A volitional analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theory, research, and practice* (pp. 111–141). New York: Springer-Verlag.

Corno, L. (1993). The best-laid plans: Modern conceptions of volition and educational research. *Educational Researcher, 22,* 14–22.

Corno, L., & Kanfer, R. (1993). The role of volition in learning and performance. In L. Darling-Hammond (Ed.), *Review of research in education* (Vol. 29). Washington, DC: American Educational Research Association.

Council of the Great City Schools. (1992). *National urban education goals: Baseline indicators, 1990–1991.* Washington, DC: Council of the Great City Schools.

Covington, M. V. (1992). *Making the grade: A self-worth perspective on motivation and school reform.* New York: Cambridge University Press.

Covington, M. V., & Omelich, C. L. (1979). Effort: The double-edged sword in school achievement. *Journal of Educational Psychology, 71,* 169–182.

Crandall, V. C. (1969). Sex differences in expectancy of intellectual and academic reinforcement. In C. P. Smith (Ed.),

Achievement related motives in children (pp. 11–45). New York: Russell-Sage Foundation.

Crandall, V. C., Katkovsky, W., & Crandall, V. J. (1965). Children's beliefs in their own control of reinforcements in intellectual-academic achievement situations. *Child Development, 36*, 91–109.

Crandall, V. J., Dewey, R., Katkovsky, W., & Preston, A. (1964). Parents' attitudes and behaviors and grade school children's academic achievements. *Journal of Genetic Psychology, 104*, 53–66.

Crandall, V. J., Preston, A., & Rabson, A. (1960). Maternal reaction and the development of independence and achievement behavior in young children. *Child Development, 31*, 243–251.

Crockenberg, S., & Bryant, B. (1978). Socialization: The "implicit curriculum" of learning environments. *Journal of Research Development in Education, 12*, 69–78.

Cross, W. E., Jr. (1990). Race and ethnicity: Effects on social networks. In M. Cochran, M. Larner, D. Riley, L. Gunnarsson, & C. Henderson (Eds.), *Extending families: The social networks of parents and their children*. New York: Cambridge University Press.

Crystal, D. S., & Stevenson, H. W. (1991). Mothers' perceptions of children's problems with mathematics: A cross-national comparison. *Journal of Educational Psychology, 83*, 372–376

Csikszentmihalyi, M. (1988). The flow experience and its significance for human psychology. In M. Csikszentmihalyi & I. S. Csikszentmihalyi (Eds.), *Optimal experience* (pp. 15–35). Cambridge, MA: Cambridge University Press.

Csikszentmihalyi, M., & Massimini, F. (1985). On the psychological selection of bio-cultural information. *New Ideas in Psychology, 3*, 15–138.

Csikszentmihalyi, M., Rathunde, K., & Whalen, S. (1993). *Talented teenagers: The roots of success and failure*. New York: Cambridge University Press.

D'Amico, R. J., Haurin, R. J., & Mott, F. L. (1983). The effects of mother's employment on adolescent and early outcomes of young men and women. In C. D. Hayes & S. B. Kamerman (Eds.), *Children of working parents: Experiences and outcomes* (pp. 130–219). Washington, DC: National Academy Press.

Dauber, S. L., & Benbow, C. P. (1990). Aspects of personality and peer relations of extremely talented adolescents. *Gifted Child Quarterly, 34*, 10–15.

DeBaryshe, B. D. (in press). Maternal belief systems: Linchpin in the home reading process. *Journal of Applied Developmental Psychology, 15*.

DeBaryshe, B. D., Patterson, G. R., & Capaldi, D. M. (1993). A performance model for academic achievement in early adolescence. *Developmental Psychology, 29*, 795–804.

deCharms, R. (1968). *Personal causation: The internal affective determinants of behavior*. New York: Academic Press

Deci, E. L. (1975). *Intrinsic motivation*. New York: Plenum Press.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

Deci, E. L., Schwartz, A. J., Sheinman, L., & Ryan, R. M. (1981). An instrument to assess adults' orientations toward control versus autonomy with children: Reflections on intrinsic motivation and perceived competence. *Journal of Educational Psychology, 73*, 645–650.

Deci, E. L., Speigel, N. H., Ryan, R. M., Koestner, R., & Kauffman, M. (1982). Effects of performance standards on teaching styles: Behavior of controlling teachers. *Journal of Educational Psychology, 74*, 852–859.

Deffenbacher, J. L. (1980). Worry and emotionality in test anxiety. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications*. Hillsdale, NJ: Erlbaum.

Denny, D. R. (1980). Self-control approaches to the treatment of test anxiety. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications*. Hillsdale, NJ: Erlbaum.

Dewey, J. (1913). *Interest and effort in education*. Boston: Riverside Press.

Dix, M. (1976). *Are reading habits of parents related to reading performance of their children?* Paper presented at the annual meeting of the National Council of the Teachers of English.

Dornbusch, S. M. (1994). *Off the track*. Presidential address at the biennial meeting of the Society for Research on Adolescence, San Diego, CA.

Dornbusch, S. M., Ritter, P. L., Leiderman, P. H., Roberts, D. F., & Fraleigh, M. J. (1987). The relation of parenting style to adolescent school performance. *Child Development, 58*, 1244–1257.

Douglas, J. D., & Rice, K. M. (1979). Sex differences in children's anxiety and defensiveness measures. *Developmental Psychology, 15*, 223–224.

Dreeben, R., & Barr, R., (1988). Classroom composition and the design of instruction. *Sociology of Education, 61*, 129–142.

Duncan, G. J., Brooks-Gunn, J., & Klevbanov, P. K. (1994). Economic deprivation and early childhood development. *Child Development, 65*, 296–318.

Dunkin, M., & Biddle, B. (1974). *The study of teaching*. Holt, Rinehart and Winston.

Dunteman, G. H., Wisenbaker, J., & Taylor, M. F. (1978). *Race and sex differences in college science program participation*. Report to the National Science Foundation. North Carolina: Research Triangle Park.

Dunton, K. J., McDevitt, T. M., & Hess, R. D (1988). Origins of mothers' attributions about their daughters' and sons' performance in mathematics in sixth grade. *Merrill-Palmer Quarterly, 34*, 47–70.

Dusek, J. B. (1980). The development of test anxiety in children. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications*. Hillsdale, NJ: Erlbaum.

Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology, 31*, 674–685.

Dweck, C. S., Davidson, W., Nelson, S., & Enna, B. (1978). Sex differences in learned helplessness: II. The contingencies of evaluative feedback in the classroom: III. An experimental analysis. *Developmental Psychology, 14*, 268–276.

Dweck, C. S., & Elliott, E. S. (1983). Achievement motivation. In P. H. Mussen (Ed.), *Handbook of child psychology* (3rd ed.) (Vol. 4, pp. 643–691). New York: Wiley.

Dweck, C. S., & Goetz, T. E. (1978). Attributions and learned helplessness. In J. H. Harvey, W. Ickes, & R. F. Kidd (Eds.), *New directions in attribution research* (Vol. 2). Hillsdale, NJ: Erlbaum.

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

Dweck, C. S., & Licht, B. G. (1980). Learned helplessness and intellectual achievement. In J. Garber & M. E. P. Seligman (Eds.), *Human helplessness: Theory and applications*. New York: Academic Press.

Dweck, C. S., & Repucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology, 25*, 109–116.

Early, D. M., Belansky, E., & Eccles, J. S. (1992, March). *The impact of gender stereotypes on perceived ability and attributions for success*. Poster presented at the biennial meeting of the Society for Research on Adolescence, Washington, DC.

Eccles, J. S. (1984). Sex differences in achievement patterns. In T. Sonderegger (Ed.), *Nebraska Symposium on Motivation* (Vol. 32, pp. 97–132). Lincoln: University of Nebraska Press.

Eccles, J. S. (1987). Gender roles and women's achievement-related decisions. *Psychology of Women Quarterly, 11*, 135–172.

Eccles, J. S. (1989). Bringing young women to math and science. In M. Crawford & M. Gentry (Eds.), *Gender and thought: Psychological perspectives* (pp. 36–57). New York: Springer-Verlag.

Eccles, J. S. (1993). School and family effects on the ontogeny of children's interests, self-perceptions, and activity choice. In J. Jacobs (Ed.) *Nebraska Symposium on Motivation, 1992: Developmental perspectives on motivation* (pp. 145–208). Lincoln: University of Nebraska Press.

Eccles, J. S. (1994). Understanding women's educational and occupational choices: Applying the Eccles et al. model of achievement-related choices. *Psychology of Women Quarterly, 18*, 585–609.

Eccles, J. S., Adler, T. F., & Meece, J. L. (1984). Sex differences in achievement: A test of alternate theories. *Journal of Personality and Social Psychology, 46*, 26–43.

Eccles, J. S., Barber, B., Updegraff, K., & O'Brien, K. (1995). *An expectancy-value model of achievement choices: The role of ability self-concepts, perceived task utility and interest in predicting activity choice and course enrollment*. Paper presented at the meeting of the American Educational Research Association, San Francisco.

Eccles, J. S., Buchanan, C. M., Flanagan, C., Fuligni, A., Midgley, C. M., & Yee, D. (1991). Control and autonomy: Individuation revisited in early adolescence. *Journal of Social Issues, 47*, 53–68.

Eccles, J. S., & Harold, R. D. (1991). Gender differences in sport involvement: Applying the Eccles' expectancy-value model. *Journal of Applied Sport Psychology, 3*, 7–35.

Eccles, J. S., & Harold, R. D. (1992). Gender differences in educational and occupational patterns among the gifted. In N. Colangelo, S. G. Assouline, & D. L. Ambronson (Eds.), *Talent development: Proceedings from the 1991 Henry B. and Jocelyn Wallace National Research Symposium on Talent Development* (pp. 3–29). Unionville, NY: Trillium Press.

Eccles, J. S., & Harold, R. D. (1993). Parent-school involvement during the early adolescent years. *Teachers' College Record 94*, 568–587.

Eccles, J. S., & Harold, R. (in press). Family involvement in children's and adolescents' schooling. In A. Booth & J. Dunn (Eds.), *Family-school links: How do they affect educational outcomes*. Hillsdale, NJ: Erlbaum.

Eccles, J. S., & Hoffman, L. W. (1984). Socialization and the maintenance of a sex-segregated labor market. In H. W. Stevenson & A. E. Siegel (Eds.), *Research in child development and social policy* (Vol. 1, pp. 367–420) Chicago University of Chicago Press.

Eccles, J. S., Jacobs, J., Harold, R. D., Yoon, K. S., Aberbach, A. & Freedman-Doan, C. (1991, August). *Expectancy effects are alive and well: Gender-role socialization*. Invited address at the annual meeting of the American Psychological Association, San Francisco.

Eccles, J. S., & Lord, S. (in press). A family management perspective on raising adolescents in different types of neighborhoods. In M. K. Rosenheim & M. F. Testa (Eds.), *Children harmed and harmful. Risks and risk-taking among ten to fifteen year olds.*

Eccles, J. S., & Midgley, C. (1989). Stage/environment fit: Developmentally appropriate classrooms for early adolescents. In R. Ames & C. Ames (Eds.), *Research on motivation in education* (Vol. 3, pp. 139–181). New York: Academic Press

Eccles, J. S., Midgley, C., & Adler, T. F. (1984). Grade-related changes in the school environment: Effects on achievement motivation. In J. H. Nicholls (Ed.), *The development of achievement motivation* (pp. 285–331). Greenwich, CT: JAI Press.

Eccles, J. S., Midgley, C., Wigfield, A., Reuman, D., Mac Iver, D., & Feldlaufer, H. (1993). Negative effects of traditional middle-schools on students' motivation. *Elementary School Journal, 93,* 553–574.

Eccles, J. S., & Wigfield, A. (1985). Teacher expectations and student motivation. In J. B. Dusek (Ed.), *Teacher expectations* (pp. 185–217). Hillsdale, NJ: Erlbaum.

Eccles, J. S., & Wigfield, A. (1995). In the mind of the achiever: The structure of adolescents' academic achievement related-beliefs and self-perceptions. *Personality and Social Psychology Bulletin, 21,* 215–225.

Eccles, J. S., Wigfield, A., & Blumenfeld, P. B. (1984). *Ontogeny of self- and task beliefs and activity choice.* Funded grant application to the National Institute for Child Health and Human Development (Grant # RO1-HD17553).

Eccles, J. S., Wigfield, A., Flanagan, C., Miller, C., Reuman, D., & Yee, D. (1989). Self-concepts, domain values, and self-esteem: Relations and changes at early adolescence. *Journal of Personality, 57,* 283–310.

Eccles, J. S., Wigfield, A., Harold, R., & Blumenfeld, P. B. (1993). Age and gender differences in children's self- and task perceptions during elementary school. *Child Development, 64,* 830–847.

Eccles, J. S., Yoon, K. S., Wigfield, A., & Eccles, J. S. (in press). *Causal relations between mothers' and children's beliefs about math ability: A structural equation model.* Manuscript submitted for publication.

Eccles-Parsons, J. (1983). Attributional processes as mediators of sex differences in achievement. *Journal of Educational Equity and Leadership, 3,* 19–27.

Eccles-Parsons, J., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., & Midgley, C. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motivation* (pp. 75–146). San Francisco: Freeman.

Eccles-Parsons, J., Adler, T. F., & Kaczala, C. M. (1982). Socialization of achievement attitudes and beliefs: Parental influences. *Child Development, 53,* 310–321.

Eccles-Parsons, J., Kaczala, C. M., & Meece, J. L. (1982). Socialization of achievement attitudes and beliefs: Classroom influences. *Child Development, 53,* 322–339.

Eccles-Parsons, J., Meece, J. L., Adler, T. F., & Kaczala, C. M. (1982). Sex differences in attributions and learned helplessness. *Sex Roles, 8,* 421–432.

Eder, D., & Felmlee, D. (1984). The development of attention norms in ability groups. In P. L. Peterson, L. C. Wilkinson, & M. Hallinan (Eds.) *The social context of instruction: Group organization and group processes* (pp. 189–208). Orlando, FL: Academic Press.

Eder, F. (1992). Schulklima und Entwicklung allgemeiner Interessen. In A. Krapp & M. Prenzel (Eds.), *Interesse, Lernen, Leistung* (pp. 165–194). Munster: Aschendorff.

Edwards, W. (1954). The theory of decision making. *Psychological Bulletin, 51,* 380–417.

Elder, G. H., Jr., Conger, R. D., Foster, E. M., & Ardelt, M. (1992). Families under economic pressure. *Journal of Family Issues, 13,* 5–37.

Elder, G. H., Jr., Eccles, J. S., Ardelt, M., & Lord, S. (1995). Inner-city parents under economic pressure: Perspectives on the strategies of parenting. *Journal of Marriage and the Family, 6,* 81–86.

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

Entwisle, D. R., & Alexander, K. L. (1990). Beginning school math competence: Minority and majority comparisons. *Child Development, 61,* 454–471.

Entwisle, D. R., & Alexander, K. L. (1993). Entry into school: The beginning school transition and educational stratification in the United States. *Annual Review of Sociology, 19,* 401–423.

Entwisle, D. R., Alexander, K. L., Pallas, A. M., & Cadigan, D. (1987). The emergent academic self-image of first graders: Its response to social structure. *Child Development, 58,* 1190–1206.

Epstein, J. L. (1983). The influence of friends on achievement and affective outcomes. In J. L. Epstein & N. L. Karweit (Eds.), *Friends in school* (pp. 177–200). New York: McGraw-Hill.

Epstein, J. L. (1992). School and family partnerships. In M. Alkin (Ed.), *Encyclopedia of educational research* (pp. 1139–1151). New York: Macmillan.

Epstein, J. L., & McPartland, J. M. (1976). The concept and measurement of the quality of school life. *American Educational Research Journal, 13,* 15–30.

Estrada, P., Arsenio, W. F., Hess, R. D., & Holloway, S. D. (1987). Affective quality of the mother-child relationship: Longitudinal consequences for children's school-relevant cognitive functioning. *Developmental Psychology, 23,* 210–215.

Feather, N. T. (1982a). Expectancy-value approaches: Present status and future directions. In N. T. Feather (Ed.), *Expectations and actions: Expectancy-value models in psychology* (pp. 395–420). Hillsdale, NJ: Erlbaum.

Feather, N. T. (1982b). *Expectations and actions: Expectancy-value models in psychology.* Hillsdale, NJ: Erlbaum.

Feather, N. T. (1988). Values, valences, and course enrollment: Testing the role of personal values within an expectancy-value framework. *Journal of Educational Psychology, 80,* 381–391.

Feather, N. T. (1992). Values, valences, expectations, and actions. *Journal of Social Issues, 48,* 109–124.

Feld, S. C. (1967). Longitudinal study of the origins of achievement strivings. *Journal of Personality and Social Psychology, 7,* 408–414.

Fincham, F. D., & Cain, K. M. (1986). Learned helplessness in humans: A developmental analysis. *Developmental Review, 6,* 301–333.

Findley, M. J., & Cooper, H. M. (1983). Locus of control and academic achievement: A literature review. *Journal of Personality and Social Psychology, 44,* 419–427.

Fine, M., & Zane, N. (1989). Bein' wrapped too tight: When low-income women drop out of high school. In L. Weis, E. Farrar, & H. Petrie (Eds.), *Dropouts from schools.* Albany: SUNY Press.

Finger, J. A., & Silverman, M. (1996). Changes in academics performance in the junior high school. *Personnel and Guidance Journal, 45,* 157–164.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59,* 117–142.

Fischoff, B., Goitein, B., & Shapira, Z. (1982). The experienced utility of expected utility approaches. In N. T. Feather (Ed.), *Expectations and actions: Expectancy-value models in psychology* (pp. 315–339). Hillsdale, NJ: Erlbaum.

Flink, C., Boggiano, A. K., & Barrett, M. (1990). Controlling teaching strategies: Undermining children's self-determination and performance. *Journal of Personality and Social Psychology, 59,* 916–924.

Ford, M. E. (1982). Social cognition and social competence in adolescence. *Developmental Psychology, 18,* 323–340.

Ford, M. E. (1992). *Human motivation: Goals, emotions, and personal agency beliefs.* Newbury Park, CA: Sage.

Ford, M. E., & Nichols, C. W. (1987). A taxonomy of human goals and some possible application. In M. E. Ford & D. H. Ford (Eds.), *Humans as self-constructing living systems: Putting the framework to work* (pp. 289–311). Hillsdale, NJ: Erlbaum.

Fordham, S., & Ogbu, J. U. (1986). Black students' school success: Coping with "the burden of 'acting white.'" *The Urban Review, 18,* 176–206.

Forsterling, F. (1985). Attributional retraining: A review. *Psychological Bulletin, 98,* 495–512.

Fowler, J. W., & Peterson, P. L. (1981). Increasing reading persistence and altering attributional style of learned helpless children. *Journal of Educational Psychology, 73,* 251–260.

Fraser, B. J., & Fisher, D. L. (1982). Predicting students' outcomes from their perceptions of classroom psychosocial environment. *American Educational Research Journal, 19,* 498–518.

Freedman-Doan, C. R. (1994). *Factors influencing the development of general, academic, and social anxiety in normal preadolescent children.* Unpublished doctoral dissertation, Wayne State University, Detroit, MI.

Freud, S. (1934). *A general introduction to psychoanalysis.* New York: Washington Square.

Frome, P., & Eccles J. (1995, April). *Underestimation of academic ability in the middle school years.* Based on poster presented at the SRCD, Indianapolis, IN.

Fuligni, A. J., & Eccles, J. S. (1993). Perceived parent-child relationships and early adolescents' orientation toward peers. *Developmental Psychology, 29,* 622–632.

Fuligni, A. J., Eccles, J. S., & Barber, B. L. (1995). The long-term effects of seventh-grade ability grouping in mathematics. *Journal of Early Adolescence, 15*(1), 58–89.

Furstenberg, F. (1993). How families manage risk and opportunity in dangerous neighborhoods. In W. J. Wilson (Ed.), *Sociology and the public agenda.* Newbury Park, CA: Sage.

Gamoran, A., & Mare, R. D. (1989). Secondary school tracking and educational inequality: Compensation, reinforcement, or neutrality? *American Journal of Sociology, 94,* 1146–1183.

Garcia, T., & Pintrich, P. R. (1994). Regulating motivation and cognition in the classroom: The role of self-schemas and self-regulatory strategies. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications* (pp. 127–154). Hillsdale, NJ: Erlbaum.

Geen, R. G. (1980). Test anxiety and cue utilization. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications.* Hillsdale, NJ: Erlbaum.

Gewirtz, J. (1969). Mechanisms of social learning: Some roles of stimulation and behavior in early human development. In D. A. Goslin (Ed.), *Handbook of socialization theory and research.* Chicago: Rand McNally.

Goldenberg, C. (1992). The limits of expectations: A case for case knowledge about teacher expectancy effects. *American Educational Research Journal, 29,* 517–544.

Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *Journal of Early Adolescence, 13*(1), 21–43.

Goodlad, J. I. (1984). *A place called school.* New York: McGraw-Hill

odnow, J. J., & Collins, W. A. (1990). *Development according to parents: The nature, sources, and consequences of parents' ideas.* London: Erlbaum.

ttfredson, L. S. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology Monograph, 28,* 545–579.

ttfried, A. E. (1986). *Children's Academic Intrinsic Motivation Inventory.* Odessa, FL: Psychological Assessment Resources.

ttfried, A. E. (1990). Academic intrinsic motivation in young elementary school children. *Journal of Educational Psychology, 82,* 525–538.

ttfried, A. E. (1991). Maternal employment in the family setting: Developmental and environmental issues. In J. V. Lerner & N. L. Galambos (Eds.), *Employed mothers and their children* (pp. 63–84). New York: Garland.

ham, S. (1984). Communicating sympathy and anger to Black and White children: The cognitive (attributional) consequences of affective cues. *Journal of Personality and Social Psychology, 47,* 14–28.

ham, S. (1991). A review of attribution theory in achievement contexts. *Educational Psychology Review, 3,* 5–39.

ham, S. (1992). Most of the subjects were European American and middle class: Trends in published research on African Americans in selected APA journals 1970–1989. *American Psychologist, 47,* 629–639.

ham, S. (1994). Motivation in African Americans. *Review of Educational Research, 64,* 55–117.

ham, S., & Barker, G. (1990). The downside of help: An attributional-developmental analysis of helping behavior as a low ability cue. *Journal of Educational Psychology, 82,* 7–14.

ham, S., & Golan, S. (1991). Motivational influences on cognition: Task involvement, ego involvement, and depth of information processing. *Journal of Educational Psychology, 83,* 187–194.

ham, S., & Weiner, B. (1996). Principles and theories of motivation. In D. C. Berliner & R. Calfee (Eds.), *Handbook of educational psychology.* New York: Macmillan.

en, K. D., Forehand, R., Beck, S. J., & Vosk, B. (1980). An assessment of the relationships among measures of children's social competence and children's academic achievement. *Child Development, 51,* 1149–1156.

lnick, W. S., & Ryan, R. M. (1987). Autonomy in children's learning: An experimental and individual difference investigation. *Journal of Personality and Social Psychology, 52,* 890–898.

lnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in schools. *Journal of Educational Psychology, 8,* 143–154.

Grolnick, W. S., Ryan, R. M., & Deci, E. L. (1991). Inner resources for school achievement: Motivational mediators of children's perceptions of their parents. *Journal of Educational Psychology, 83,* 508–517.

Grolnick, W. S., & Slowiaczek, M. L. (1994). Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model. *Child Development, 65,* 237–252.

Gurin, P., & Epps, E. (1974). *Black consciousness, identity, and achievement.* New York: Wiley.

Hale-Benson, J. (1989). The school learning environment and academic success. In G. L. Berry & J. K. Asamen (Eds.), *African American students: Psychosocial issues and academic achievement* (pp. 83–97). Newbury Park, CA: Sage.

Harackiewicz, J. M., & Elliot, A. J. (1993). Achievement goals and intrinsic motivation. *Journal of Personality and Social Psychology, 65,* 904–915.

Hare, B. R. (1985). Stability and change in self-perceptions and achievement among African American adolescents: A longitudinal study. *Journal of African American Psychology, 11,* 29–42.

Hart, D., Yates, M., Fegley, S., & Wilson, G. (in press). Moral commitment in inner-city adolescents. In M. Killen & D. Hart (Eds.), *Morality in everyday life: Developmental perspectives.* New York: Cambridge University Press.

Harter, S. (1981). A new self-report scale of intrinsic versus extrinsic orientation in the classroom: Motivational and informational components. *Developmental Psychology, 17,* 300–312.

Harter, S. (1982). The Perceived Competence Scale for Children. *Child Development, 53,* 87–97.

Harter, S. (1983). Developmental perspectives on the self-system. In P. H. Mussen (Ed.), *Handbook of child psychology* (Vol. 4, pp. 275–385). New York: Wiley.

Harter, S. (1990). Causes, correlates and the functional role of global self-worth: A life-span perspective. In J. Kolligian & R. Sternberg (Eds.), *Perceptions of competence and incompetence across the life-span* (pp. 67–98). New Haven, CT: Yale University Press.

Harter, S. (1992). Visions of self: Beyond the me in the mirror. In J. Jacobs (Ed.), *Nebraska Symposium on Motivation* (Vol. 40). Lincoln: University of Nebraska Press.

Harter, S., & Pike, R. (1984). The pictorial scale of perceived competence and social acceptance for young children. *Child Development, 55,* 1969–1982.

Hebb, D. O. (1955). Drives and the C.N.S. (Conceptual Nervous System). *Psychological Review, 62,* 243–254.

Heckhausen, H. (1977). Achievement motivation and its constructs: A cognitive model. *Motivation and Emotion, 1,* 283–329.

Heckhausen, H. (1984). Emergent achievement behavior: Some early developments. In J. Nicholls (Ed.), *Advances in achievement motivation* (pp. 1–32). Greenwich, CT: JAI Press.

Heckhausen, H. (1987). Emotional components of action: Their ontogeny as reflected in achievement behavior. In D. Görlitz & J. F. Wohlwill (Eds.), *Curiosity, imagination, and play.* Hillsdale, NJ: Erlbaum.

Heckhausen, H. (1991). *Motivation and action.* Berlin: Springer-Verlag.

Hedelin, L., & Sjoberg, L. (1989). The development of interests in the Swedish comprehensive school. *European Journal of Psychology of Education, 4,* 17–35.

Heider, F. (1958). *The psychology of interpersonal relations.* New York: Academic Press.

Heilburn, A. B., & Walters, D. B. (1968). Under achievement as related to perceived maternal child rearing and academic conditions of reinforcement. *Child Development, 39,* 913–921.

Helmke, A. (1993). Die Entwicklung der Lernfreude vom Kindergarten bis zur 5. Klassenstufe (The development of learning from kindergarten to fifth grade). *Zeitschrift für Pädagogische Psychologie (Journal of Educational Psychology), 7,* 77–86.

Herbart, J. F. (1965). Umria paedagogischer Vorlesungen. In J. F. Herbart (Ed.), *Paedagogische Schriften* (Vol. 3, pp. 157–300). Duesseldorf: Kuepper. (Original work published 1841)

Hess, R. D. (1970). Social class and ethnic influences on socialization. In P. H. Mussen (Ed.), *Carmichael's manual of child psychology.* New York: Wiley.

Hess, R. D., & Azuma, H. (1991). Cultural support for schooling: Contrasts between Japan and the United States. *Educational Researcher, 20,* 2–8.

Hess, R. D., Chih-Mei, & McDevitt, T. M. (1987). Cultural variations in family beliefs about children's performance in mathematics: Comparisons among People's Republic of China, Chinese-American, and Caucasian-American families. *Journal of Educational Psychology, 70,* 179–188.

Hess, R. D., & Holloway, S. D. (1984). Family and school as educational institutions. In R. D. Parke (Ed.), *Review of child development and research: Vol. 17. The family* (pp. 179–222). Chicago: University of Chicago Press.

Hess, R. D., Holloway, S. D., Dickson, W. P., & Price, G. G. (1984). Maternal variables as predictors of children's school readiness and later achievement in vocabulary and mathematics in sixth grade. *Child Development, 55,* 1902–1912.

Heyman, G. D., Dweck, C. S., & Cain, K. M. (1993). Young children's vulnerability to self-blame and helplessness: Relationships to beliefs about goodness. *Child Development, 63,* 401–415.

Hidi, S. (1990). Interest and its contribution as a mental resource for learning. *Review of Educational Research, 60,* 549–571.

Hidi, S., & Baird, W. (1986). Interestingness—A neglected variable in discourse processing. *Cognitive Science, 10,* 179–194.

Hill, K. T. (1980). Motivation, evaluation, and educational testing policy. In L. J. Fyans (Ed.), *Achievement motivation: Recent trends in theory and research.* New York: Plenum Press.

Hill, K. T., & Sarason, S. B. (1966). The relation of test anxiety and defensiveness to test and school performance over the elementary school years: A further longitudinal study. *Monographs for the Society for Research in Child Development, 31*(2, Serial No. 104).

Hill, K. T., & Wigfield, A. (1984). Test anxiety: A major educational problem and what to do about it. *Elementary School Journal, 85,* 105–126.

Hinshaw, S. P. (1992). Externalizing behavior problems and academic underachievement in childhood and adolescence: Causal relationships and underlying mechanisms. *Psychological Bulletin, 111,* 127–155.

Hoffmann, L., & Haeussler. (1995, April). *Modification of interests by instruction.* Paper presented at the annual American Educational Research Association meeting in San Francisco, CA.

Hokoda, A., & Fincham, F. D. (1995). Origins of children's helpless and mastery achievement patterns in the family. *Journal of Educational Psychology, 87,* 375–385.

Holloway, S. D. (1986). The relationship of mothers' beliefs to children's mathematics achievement: Some effects of sex differences. *Merrill-Palmer Quarterly, 32,* 231–250.

Holloway, S. D. (1988). Concepts of ability and effort in Japan and the United States. *Review of Educational Research, 58* 327–345.

Holloway, S. D., Kashiwagi, K., Hess, R. D., & Azuma, H. (1986). Causal attributions by Japanese and American mothers and children about performance in mathematics. *International Journal of Psychology, 21,* 269–286.

Horwitz, R. A. (1979). Psychological effects of the open classroom. *Review of Educational Research, 49,* 71–85.

Hull, C. L. (1943). *Principles of behavior.* New York: Appleton-Century-Crofts.

Hunt, D. E. (1979). Person-environment interaction: A challenge found wanting before it was tried. *Review of Educational Research, 45,* 209–230.

Hunt, J. M., & Paraskevopoulos, J. (1980). Children's psychological development as a function of the inaccuracy of their mothers' knowledge of their abilities. *Journal of Genetic Psychology, 136,* 285–298.

Huston, A. (1983). Sex-typing. In P. H. Mussen (Ed.), *Handbook of child psychology* (Vol. 4, pp. 387–467). New York: Wiley.

Huston, A. C., McLoyd, V., & Coll, C. G. (1994). Children and poverty: Issues in contemporary research. *Child Development, 65,* 275–282.

Jackson, P. W. (1968). *Life in classrooms.* New York: Holt, Rinehart and Winston.

Jacobs, J. E. (1992). The influence of gender stereotypes on parent and child math attitudes. *Journal of Educational Psychology, 83,* 518–527.

Jacobs, J. E., & Eccles, J. S. (1992). The influence of parent stereotypes on parent and child ability beliefs in three domains. *Journal of Personality and Social Psychology, 63,* 932–944.

James, W. (1963). *Psychology.* New York: Fawcett. (Original work published 1892)

Jencks, C. L., & Brown, M. (1975). The effects of high schools on their students. *Harvard Educational Review, 45,* 273–324.

Jennings, K. D. (1991). Early development of mastery motivation and its relation to the self-concept. In M. Bullock (Ed.), *The development of intentional action: Cognitive, motivational, and interactive processes: Vol. 22. Contributions to human development.* Basel: Karger Press.

Jozefowicz, D. M., Eccles, J. S., & Barber, B. L. (1993, March). *Adolescent work-related values and beliefs: Gender differences and relation to occupational aspirations.* Paper presented at the biennial meeting of the Society for Research in Child Development, New Orleans, LA.

Jussim, L., & Eccles, J. S. (1992). Teacher expectations: II. Construction and reflection of student achievement. *Journal of Personality and Social Psychology, 63,* 947–961.

Jussim, L., Eccles, J., & Madon, S. (1996). Social perception, social stereotypes, and teacher expectations: Accuracy and the quest for the powerful self-fulfilling prophecy. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 281–388). New York: Academic Press.

Kage, M., & Namiki, H. (1990). The effects of evaluation structure on children's intrinsic motivation and learning. *Japanese Journal of Educational Psychology, 38,* 36–45.

Kagen, S. L. (1989). Early care and education: Beyond the schoolhouse doors. *Phi Delta Kappan, 71,* 107–112.

Kahle, J. (1984). *Girl-friendly science.* Paper presented at the meeting of the American Association for the Advancement of the Sciences, New York.

Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist, 39,* 341–350.

Kandel, D. B., & Lesser, G. S. (1969). Parental and peer influence, on educational plans of adolescents. *American Sociological Review, 34,* 213–223.

Kao, G., & Tienda, M. (1995). Optimism and achievement: The educational performance of immigrant youth. *Social Science Quarterly, 76,* 1–19.

Katkovsky, W., Crandall, V. C., & Preston, A. (1964). Parent attitudes toward their personal achievements and toward the achievement behavior of their children. *Journal of Genetic Psychology, 104,* 67–82.

Kazdin, A. E. (1982). The token economy: A decade later. *Journal of Applied Behavior Analysis, 15,* 431–445.

Keating, D. P. (1990). Adolescent thinking. In S. S. Feldman & G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 54–89). Cambridge, MA: Harvard University Press.

Kelly, H. H. (1972). Causal schemata and the attribution process. In E. E. Jones, D. E. Kanouse, R. E. Nisbett, S. Valin, & B. Weiner (Eds.), *Attributions: Perceiving the causes of behavior.* Morristown, NJ: General Learning Press.

Keogh, B. (1986). Temperament and schooling: Meaning of "goodness of fit." In J. Lerner & R. Lerner (Eds.), *Temperament and social interaction during infancy and childhood* (pp. 89–108). San Francisco: Jossey-Bass.

Kerschensteiner, G. (1922). *Theorie der Bildung (Theories of education).* Leipzig: Teubner.

Kindermann, T. A. (1993). Natural peer groups as contexts for individual development: The case of children's motivation in school. *Developmental Psychology, 29*(6), 970–977.

Kindermann, T. A., McCollam, T. L., & Gibson, E., Jr. (in press). Peer networks and students' classroom engagement during childhood and adolescence. In K. Wentzel & J. Juvonen (Eds.), *Social motivation: Understanding children's school adjustment.* Cambridge, England: Cambridge University Press.

Knight, R. (1981). Parents' beliefs about cognitive development: The role of experience. In A. R. Nesdale, C. Pratt, R. Grieve, J. Field, D. Illingworth, & J. Hogben (Eds.), *Advances in child development: Theory and research* (pp. 226–229). Perth: University of Western Australia Press.

Kohlberg, L. (1966). A cognitive-development analysis of children's sex-role concepts and attitudes. In E. E. Maccoby (Ed.), *The development of sex differences* (pp. 82–172). Stanford, CA: Stanford University Press.

Kopp, C. B. (1991). Young children's progression to self-regulation. In M. Bullock (Ed.), *The development of intentional action: Cognitive, motivational, and interactive processes: Vol. 22. Contributions to human development.* Basel: Karger Press.

Krapp, A., Hidi, S., & Renninger, K. A. (1992). Interest, learning and development. In K. A. Renninger, S. Hidi, & A. Krapp (Eds.), *The role of interest in learning and development* (pp. 3–25). Hillsdale, NJ: Erlbaum.

Kuhl, J. (1985). Volitional mediators of cognition-behavior consistency: Self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckman (Eds.), *Action control: From cognition to behavior.* Berlin: Springer-Verlag.

Kuhl, J. (1987). Action control: The maintenance of motivational states. In F. Halisch & J. Kuhl (Eds.), *Motivation, intention, and volition* (pp. 279–307). Berlin: Springer-Verlag.

Kuhl, J., & Kraska, K. (1989). Self-regulation and metamotivation: Computational mechanisms, development, and assessment. In R. Kanfer, P. L. Ackerman, & R. Cudeck (Eds.), *Abilities, motivation, and methodology.* Hillsdale, NJ: Erlbaum.

Kulik, C. L., Kulik, J., & Bangert-Drowns, R. (1990). Effectiveness of mastery learning programs: A meta-analysis. *Review of Educational Research, 60,* 265–299.

Kulik, J. A., & Kulik, C. L. (1987). Effects of ability grouping on student achievement. *Equity and Excellence, 23,* 22–30.

Kun, A., Parsons, J. E., & Ruble, D. (1974). The development of integration processes using ability and effort information to predict outcome. *Developmental Psychology, 10,* 721–732.

Ladd, G. W. (1990). Having friends, keeping friends, making friends, and being liked by peers in the classroom: Predictors of children's early school adjustment? *Child Development, 61,* 1081–1100.

Ladd, G. W., & Price, J. M. (1987). Predicting children's social and school adjustment following the transition from preschool to kindergarten. *Child Development, 58,* 1168–1189.

Laosa, L. M. (1984). Social policies toward children of diverse ethnic, racial, and language groups in the United States. In H. W. Stevenson & A. E. Siegel (Eds.), *Child developmental research and social policy* (pp. 1–109). Chicago: University of Chicago Press.

Lee, S., Ichikawa, V., & Stevenson, H. S. (1987). Beliefs and achievement in mathematics and reading: A cross-national study of Chinese, Japanese, and American children and their mothers. In M. Maehr (Ed.), *Advances in motivation* (Vol. 7, pp. 149–179). Greenwich, CT: JAI Press.

Lee, V. E., & Bryk, A. S. (1989). A multilevel model of the social distribution of high school achievement. *Sociology of Education, 62,* 172–192.

Lehrke, M., Hoffmann, L., & Gardner, P. L. (Eds.). (1985). *Interests in science and technology education.* Kiel: Institut fur die Padagogik der Naturwissenschaften.

Lepper, M. R. (1988). Motivational considerations in the study of instruction. *Cognition and Instruction, 5,* 289–309.

Lepper, M. R., & Chabay, R. W. (1985). Intrinsic motivation and instruction: Conflicting views on the role of motivational processes in computer-based education. *Educational Psychologist, 20,* 217–230.

Lepper, M. R., & Cordova, D. (1992). A desire to be taught: Instructional consequences of intrinsic motivation. *Motivation and Emotion, 3,* 187–208.

Lepper, M. R., & Green, D. (1978). *The hidden cost of rewards: New perspectives on the psychology of human motivation.* Hillsdale, NJ: Erlbaum.

Lewin, K. (1938). *The conceptual representation and the measurement of psychological forces.* Durham, NC: Duke University Press.

Lewin, K., Dembo, T., Festinger, L., & Sears, R. S. (1944). Level of aspiration. In J. M. Hunt (Ed.), *Personality and the behavior disorders* (Vol. 1). New York: Ronald Press.

Liebert, R., & Morris, L. W. (1967). Cognitive and emotional components of test-anxiety: A distinction and some initial data. *Psychological Reports, 20,* 975–978.

Lightfoot, S. L. (1978). *Worlds apart: Relationships between families and schools.* New York: Basic Books.

Lipsitz, J. (1984). *Successful schools for young adolescents.* New Brunswick, NJ: Transaction Books.

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

Lord, S., Eccles, J. S., & McCarthy, K. (1994). Risk and protective factors in the transition to junior high school. *Journal of Early Adolescence, 14,* 162–199.

Lummis, M., & Stevenson, H. W. (1990). Gender differences in beliefs and achievement: A cross-cultural study. *Developmental Psychology, 26,* 254–263.

Luster, T., & McAdoo, H. P. (1994). Factors related to the achievement and adjustment of young African American children. *Child Development, 65,* 1080–1094.

Luster, T., Rhoades, K., & Haas, B. (1989). The relation between parental values and parenting behavior: A test of the Kohn hypothesis. *Journal of Marriage and the Family, 51,* 139–147.

Mac Iver, D. J. (1987). Classroom factors and student characteristics predicting students' use of achievement standards during ability self-assessment. *Child Development, 58,* 1258–1271.

Mac Iver, D. J., & Reuman, D. A. (1988, April). *Decision-making in the classroom and early adolescents' valuing of mathematics.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

Mac Iver, D. J., & Reuman, D. A. (1993). Giving their best: Grading and recognition practices that motivate students to work hard. *American Education 17,* 24–31.

Mac Iver, D. J., Reuman, D. A., & Main, S. R. (1995). Social structuring of school: Studying what is, illuminating what could be. In M. R. Rosenzweig & L. W. Porter (Eds.), *Annual review of psychology* (Vol. 46).

Mac Iver, D. J., Stipek, D. J., & Daniels, D. H. (1991). Explaining within-semester changes in student effort in junior high school and senior high school courses. *Journal of Educational Psychology, 83,* 201–211.

Maehr, M. L., & Anderman, E. M. (1993). Reinventing schools for early adolescents: Emphasizing task goals. *The Elementary School Journal, 93,* 593–610.

Maehr, M. L., & Midgley, C. (1996). *Transforming school cultures*. Boulder, CO: Westview Press.

Maehr, M. L., & Nicholls, J. G., (1980). Culture and achievement motivation: A second look. In N. Warren (Ed.), *Studies in cross cultural psychology* (Vol. 3, pp. 221–267). New York: Academic Press.

Manley, J. J., & Rosemier, R. A. (1972). Developmental trends in general and test anxiety among junior high and senior high school students. *Journal of Genetic Psychology, 12*, 119–126.

Marjoribanks, K. (1979). *Families and their learning environments*. London: Routledge & Kegan Paul.

Marjoribanks, K. (1980). *Ethnic families and children's achievement*. Sydney: Allen & Unwin.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist, 41*, 954–969.

Markus, H., & Wurf, E. (1987). The dynamic self-concept: A social psychological perspective. *Annual Review of Psychology, 38*, 299–337.

Marsh, H. W. (1989). Age and sex effects in multiple dimensions of self-concept: Preadolescence to early adulthood. *Journal of Educational Psychology, 81*, 417–430.

Marsh, H. W. (1990a). A multidimensional, hierarchical self-concept: Theoretical and empirical justification. *Educational Psychology Review, 2*, 77–171.

Marsh, H. W. (1990b). The causal ordering of academic self-concept and academic achievement: A multiwave, longitudinal analysis. *Journal of Educational Psychology, 82*.

Marsh, H. W., Barnes, J., Cairns, L., & Tidman, M. (1984). Self-Description Questionnaire: Age and sex effects in the structure and level of self-concept for preadolescent children. *Journal of Educational Psychology, 76*, 940–956.

Marsh, H. W., Chessor, D., Craven, R., & Roche, L. (1995). The effects of gifts and talented programs on academic self-concept: The big fish strikes again. *American Educational Research Journal, 32*, 285–319.

Marsh, H. W., Craven, R. G., & Debus, R. (1991). Self-concepts of young children 5 to 8 years of age: Measurement and multidimensional structure. *Journal of Educational Psychology, 83*, 377–392.

Marsh, H. W., & Hocevar, D. (1985). The application of confirmatory factor analyses to the study of self-concept: First and higher-order factor structures and their invariance across age groups. *Psychological Bulletin, 97*, 562–582.

Marsh, H. W., & Shavelson, R. (1985). Self-concept: Its multifaceted, hierarchical structure and its relation to academic achievement. *Educational Psychologist, 20*, 107–125.

Martin, R., Drew, K., Gaddis, L., & Moseley, M. (1988). Prediction of elementary school achievement from preschool temperament: Three studies. *School Psychology Review, 17*, 125–137.

Massimini, F., & Carli, M. (1988). The systematic assessment of flow in daily experience. In M. Csikszentmihalyi & I. S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 266–287). Cambridge, MA: Cambridge University Press.

Matsumoto, D., & Sanders, M. (1988). Emotional experiences during engagement in intrinsically and extrinsically motivated tasks. *Motivation and Emotion, 12*, 353–369.

McCall, R. B., Evahn, C., & Kratzer, L. (1992). *High school underachievers: What do they achieve as adults?* Newbury Park, CA: Sage.

McClelland, D. C. (1961). *The achieving society*. Princeton, NJ: Van Nostrand.

McClelland, D. C. (1985). How motives, skills, and values determine what people do. *American Psychologist, 40*, 812–825.

McGillicuddy-DeLisi, A. V. (1982). Parental beliefs about development. *Human Development, 25*, 192–200.

McGillicuddy-DeLisi, A. V., & Sigel, I. E. (1991). Family environments and children's representational thinking. In P. Mosenthal (Ed.), *Advances in reading/language research* (Vol. 5, pp. 63–90). JAI Press.

McLoyd, V. C. (1990). The impact of economic hardship on African American families and children: Psychological distress, parenting, and socioemotional development. *Child Development, 61*, 311–346.

Meece, J. L. (1991). The classroom context and students' motivational goals. In M. Maehr & P. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 7, pp. 261–286). Greenwich, CT: JAI Press.

Meece, J. L. (1994). The role of motivation in self-regulated learning. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance* (pp. 25–44). Hillsdale, NJ: Erlbaum.

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

Meece, J. L., Eccles-Parsons, J., Kaczala, C. M., Goff, S. E., & Futterman, R. (1982). Sex differences in math achievement: Toward a model of academic choice. *Psychological Bulletin, 91*, 324–348.

Meece, J. L., & Miller, S. D. (1996, April). *Developmental changes in children's self-reports of achievement goals, competence, and strategy use during the late elementary years*. Paper presented at the annual meeting of the American Educational Research Association, New York.

Meece, J. L., Wigfield, A., & Eccles, J. S. (1990). Predictors of math anxiety and its consequences for young adolescents' course enrollment intentions and performances in mathematics. *Journal of Educational Psychology, 82*, 60–70.

Meichenbaum, D., & Butler, L. (1980). Toward a conceptual model of the treatment of test anxiety: Implications for research and treatment. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications*. Hillsdale, NJ: Erlbaum.

Midgley, C., Anderman, E., & Hicks, L. (1995). Differences between elementary and middle school teachers and students: A goal theory approach. *Journal of Early Adolescence, 15*, 90–113.

Midgley, C., & Feldlaufer, H. (1987). Students' and teachers' decision-making fit before and after the transition to junior high school. *Journal of Early Adolescence, 7*, 225–241.

Midgley, C., Feldlaufer, H., & Eccles, J. S. (1988). The transition to junior high school: Beliefs of pre- and post-transition teachers. *Journal of Youth and Adolescence, 17*, 543–562.

Midgley, C., Feldlaufer, H., & Eccles, J. S. (1989a). Changes in teacher efficacy and student self- and task-related beliefs during the transition to junior high school. *Journal of Educational Psychology, 81*, 247–258.

Midgley, C., Feldlaufer, H., & Eccles, J. S. (1989b). Student/teacher relations and attitudes toward mathematics before and after the transition to junior high school. *Child Development, 60*, 981–992.

Miller, S. A. (1988). Parents' beliefs about children's cognitive development. *Child Development, 59*, 259–285.

Miller, S. A. (in press). Parents' attributions for their children's behavior. *Child Development*.

Miller, S. A., & Davis, T. L. (1992). Beliefs about children: A comparative study of mothers, teachers, peers, and self. *Child Development, 63*, 1251–1265.

Miller, S. A., Manhal, M., & Mee, L. L. (1991). Parental beliefs, parental accuracy, and children's cognitive performance: A search for causal relations. *Developmental Psychology, 27*, 267–276.

Mischel, W., & Mischel, C. (1983). Development of children's knowledge of self-control strategies. *Child Development, 54*, 603–619.

Mitman, A. L., Mergendoller, J. R., Packer, M. J., & Marchman, V. A. (1984). *Scientific literacy in seventh-grade life science: A study of instructional process, task completion, student perceptions and learning outcomes: Final report*. San Francisco: Far West Laboratory.

Modell, J. (1993). *Desire to learn: A comparative view of schooling in children's lives*. Princeton, NJ: Educational Testing Service.

Moos, R. H. (1979). *Evaluating educational environments*. San Francisco: Jossey-Bass.

Morris, L. W., Davis, M. A., & Hutchings, C. J. (1981). Cognitive and emotional components of anxiety: Literature review and a revised worry-emotionality scale. *Journal of Educational Psychology, 73*, 541–555.

Murray, H. A. (1938). *Explorations in personality*. New Yo Oxford University Press.

Nagy, L. (1912). *Psychologie des kindlichen Interesses* (Psych ogy of interests). Leipzig: Nemnich.

Nash, S. C. (1979). Sex role as a mediator of intellectual fu tioning. In M. A. Wittig & A. C. Peterson (Eds.), *Sex-relat differences in cognitive functioning: Developmental issu* New York: Academic Press.

Nelson-Le Gall, S., & Glor-Sheib, S. (1985). Help seeking in e ementary classrooms: An observational study. *Contempora Educational Psychology, 10*, 58–71.

Nelson-Le Gall, S., & Jones, E. (1990). Cognitive-motivation influences on task-related help-seeking behavior of Blac children. *Child Development, 61*, 581–589.

Newman, R. S. (1990). Children's help-seeking in the classroom The role of motivational factors and attitudes. *Journal of Ed ucational Psychology, 82*, 71–80.

Newman, R. S. (1994). Adaptive help-seeking: A strategy o self-regulated learning. In D. H. Schunk & B. J. Zimmerma (Eds.), *Self-regulation of learning and performance: Issue and educational applications* (pp. 283–301). Hillsdale, NJ Erlbaum.

Newman, R. S., & Goldin, L. (1990). Children's reluctance t seek help with schoolwork. *Journal of Educational Psychol ogy, 82*, 92–100.

Newman, R. S., & Schwager, M. T. (1995). Students help-seeking during problem solving: Effects of grader, goal, and prior achievement. *American Educational Research Journal, 32*, 352–376.

Nicholls, J. G. (1976). When a test measures more than its name: The case of the Test Anxiety Scale for Children. *Journal of Consulting and Clinical Psychology, 20*, 321–326.

Nicholls, J. G. (1978). The development of the concepts of effort and ability, perceptions of academic attainment, and the understanding that difficult tasks require more ability. *Child Development, 49*, 800–814.

Nicholls, J. G. (1979a). Development of perception of own attainment and causal attributions for success and failure in reading. *Journal of Educational Psychology, 71*, 94–99.

Nicholls, J. G. (1979b). Quality and equality in intellectual development: The role of motivation in education. *American Psychologist, 34*, 1071–1084.

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*, 328–346.

Nicholls, J. G. (1989). *The competitive ethos and democratic education*. Cambridge MA: Harvard University Press.

Nicholls, J. G. (1990). What is ability and why are we mindful of it? A developmental perspective. In R. J. Sternberg &

J. Kolligian (Eds.). *Competence considered*. New Haven, CT: Yale University Press.

Nicholls, J. G. (1992). Students as educational theorists. In D. H. Schunk & J. L. Meece (Ed.), *Student self-perceptions in the classroom* (pp. 267–286). Hillsdale, NJ: Erlbaum.

Nicholls, J. G., Cobb, P., Yackel, E., Wood, T., & Wheatley, G. (1990). Students' theories of mathematics and their mathematical knowledge: Multiple dimensions of assessment. In G. Kulm (Ed.), *Assessing higher order thinking in mathematics* (pp. 137–154). Washington, DC: American Association for the Advancement of Science.

Nicholls, J. G., & Miller, A. T. (1984). The differentiation of the concepts of difficulty and ability. *Child Development, 54*, 951–959.

Nicholls, J. G., Patashnick, M., & Mettetal, G. (1986). Conceptions of ability and intelligence. *Child Development, 57*, 636–645.

Nolen, S. B., & Nicholls, J. G. (1994). A place to begin (again) in research on student motivation: Teachers' beliefs. *Teaching and Teacher Education, 10*, 57–69.

Ogbu, J. G. (1985). Cultural ecology of competence among inner-city blacks. In H. McAdoo & J. Mc Adoo (Eds.), *Black children social, educational, and parental environments*. Newbury Park, CA: Sage.

Ogbu, J. G. (1992). Understanding cultural diversity and learning. *Educational Researcher, 21*, 5–14.

Oldfather, P., & McLaughlin, J. (1993). Gaining and losing voice: A longitudinal study of students' continuing impulse to learn across elementary and middle school contexts. *Research in Middle Level Education, 17*, 1–25.

Pajares, F., & Miller, M. D. (1994). Role of self-efficacy and self-concept beliefs in mathematical problem solving: A path analysis. *Journal of Educational Psychology, 86*, 193–203.

Pallas, A. M., Entwisle, D. R., Alexander, K. L., & Stluka, M. F. (1994). Ability-group effects: Instructional, social, or institutional? *Sociology of Education, 67*, 27–46.

Paris, S. G., & Byrnes, J. P. (1989). The constructivist approach to self-regulation and learning in the classroom. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theory, research, and practice*. New York: Springer-Verlag.

Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin, 102*, 357–389.

Parsons, J. E., & Goff, S. B. (1980). Achievement motivation and values: An alternative perspective. In L. J. Fyans (Ed.), *Achievement motivation* (pp. 349–373). New York: Plenum Press.

Parsons, J. E., & Ruble, D. N. (1972). Attributional processes related to the development of achievement-related affect and expectancy. *APA Proceedings, 80th Annual Convention*, 105–106.

Parsons, J. E., & Ruble, D. N. (1977). The development of achievement-related expectancies. *Child Development, 48*, 1075–1079.

Patrick, B. C., Skinner, E. A., & Connell, J. P. (1993). What motivates children's behavior and emotion? Joint effects of perceived control and autonomy in the academic domain. *Journal of Personality and Social Psychology, 65*, 781–791.

Pekrun, R. (1993). Facets of adolescents' academic motivation: A longitudinal expectancy-value approach. In M. Maehr & P. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 8, pp. 139–189). Greenwich, CT: JAI Press.

Phillips, B., Pitcher, G. D., Worsham, M. E., & Miller, S. L. (1980). Test anxiety and the school environment. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications*. Hillsdale, NJ: Erlbaum.

Phillips, D. A. (1987). Socialization of perceived academic competence among highly competent children. *Child Development, 58*, 1308–1320.

Piaget, J. (1948). *Psychologie der Intelligenz (Psychology of intelligence)*. Zuerich: Rascher.

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.

Pintrich, P. R., Marx, R. W., & Boyle, R. A. (1993). Beyond cold conceptual change: The role of motivational beliefs and classroom contextual factors in the process of conceptual change. *Review of Educational Research, 63*, 167–199.

Pintrich, P. R., & Schrauben, B. (1992). Students' motivational beliefs and their cognitive engagement in classroom academic tasks. In D. H. Schunk & J. L. Meece (Eds.), *Student perceptions in the classroom* (pp. 149–183). Hillsdale, NJ: Erlbaum.

Pintrich, P. R., & Schunk, D. H. (1996). *Motivation in education: Theory, research, and applications*. Englewood Cliffs, NJ: Merrill/Prentice-Hall.

Pokay, P., & Blumenfeld, P. C. (1990). Predicting achievement early and late in the semester: The role of motivation and learning strategies. *Journal of Educational Psychology, 82*, 41–50.

Pressley, M., & El-Dinary, P. B. (Eds.). (1993). Strategies instruction [Special issue]. *Elementary School Journal, 94*(2).

Raynor, J. O. (1982). Future orientation, self-evaluation, and achievement motivation: Use of an expectancy X value theory of personality functioning and change. In N. T. Feather (Ed.), *Expectations and actions: Expectancy-value models in psychology* (pp. 97–124). Hillsdale, NJ: Erlbaum.

Renninger, K. A. (1990). Children's play interests, representation, and activity. In R. Fivush & J. Hudson (Eds.), *Knowing and remembering in young children* (pp. 127–165). Cambridge, MA: Cambridge University Press.

Renninger, K. A., Hidi, S., & Krapp, A. (Eds.). (1992). *The role of interest in learning and development*. Hillsdale, NJ: Erlbaum.

Renninger, K. A., & Wozniak, R. H. (1985). Effect of interest on attentional shift, recognition, and recall in young children. *Developmental Psychology, 21*, 624–632.

Reuman, D. A. (1989). How social comparison mediates the relation between ability-grouping practices and students' achievement expectancies in mathematics. *Journal of Educational Psychology, 81*, 178–189.

Reuman, D. A., Mac Iver, D., Eccles, J., & Wigfield, A. (1987, April). *Changes in students' mathematics motivation and behavior at the transition to junior high school*. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

Rheinberg, F. (1988). Motivation and learning activities: How research could proceed. *International Journal of Educational Research, 12*, 299–306.

Rheinberg, F. (1995). Flow-Erleben, Freude an riskantem Sport und andere "unvernunftige" Motivationen (Flow experience, pleasure at risky sports and other "foolish" motivations). In J. Kuhl & H. Heckhausen (Hrsg.). *Motivation, Volition und Handlung (Motivation, volition, and action)* (Enzyklopadie der Psychologie, C. Serie Motivation und Emotion, Bd. 4) (S. 101–118). Gottingen: Hogrefe.

Rholes, W. S., Blackwell, J., Jordan, C., & Walters, C. (1980). A developmental study of learned helplessness. *Developmental Psychology, 16*, 616–624.

Roberts, T. A. (1991). Gender and the influence of evaluations on self-assessments in achievement settings. *Psychological Bulletin, 109*, 297–308.

Roe, A., & Siegelman, M. (1964). *The origin of interests*. Washington, DC: American Personnel and Guidance Association.

Rokeach, M. (1979). From individual to institutional values with special reference to the values of science. In M. Rokeach (Ed.), *Understanding human values* (pp. 47–70). New York: Free Press.

Rosen, B. C. (1959). Race, ethnicity, and the achievement syndrome. *American Society Review, 24*, 47–60.

Rosen, B. C., & D'Andrade, R. (1959). The psychosocial origins of achievement motivation. *Sociometry, 22*, 185–218.

Rosenbaum, J. E. (1976). *Making inequality: The hidden curriculum of high school tracking*. New York: Wiley.

Rosenbaum, J. E. (1980). Social implications of educational grouping. *Review of Research in Education, 7*, 361–401.

Rosenholtz, S. R., & Rosenholtz, S. J. (1981). Classroom organization and the perception of ability. *Sociology of Education, 54*, 132–140.

Rosenholtz, S. J., & Simpson, C. (1984). The formation of ability conceptions: Developmental trend or social construction? *Review of Educational Research, 54*, 31–63.

Rosenthal, R. (1969). Interpersonal expectations: Effects of the experimenter's hypothesis. In R. Rosenthal & R. L. Rosnow (Eds.), *Artifact in behavioral research* (pp. 182–279). New York: Academic Press.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*, 1–28.

Rounds, T. S., & Osaki, S. Y. (1982). *The social organization of classrooms: An analysis of sixth- and seventh-grade activity structures* (Report EPSSP-82-5). San Francisco: Far West Laboratory.

Rubinstein, S. L. (1958). *Grundlagen der allgemeinen Psychologie (Foundations of psychology)*. Berlin: Volk & Wissen. (Original erschienen 1935)

Ruble, D. (1983). The development of social comparison processes and their role in achievement-related self-socialization. In E. T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.), *Social cognition and social development: A sociocultural perspective* (pp. 134–157). New York: Cambridge University Press.

Ruble, D. (1994). A phase model of transitions: Cognitive and motivational consequences. *Advances in experimental social psychology* (Vol. 26, pp. 163–214). New York: Academic Press.

Ruble, D. N., Parsons, J. E., & Ross, J. (1976). Self-evaluative responses of children in an achievement setting. *Child Development, 47*, 990–997.

Rutter, M., Maughan, B., Mortimor, P., & Ouston, J. (1979). *Fifteen thousand hours: Secondary schools and their effects on children*. Cambridge: Harvard University Press.

Ryan, R. M. (1992). Agency and organization: Intrinsic motivation, autonomy, and the self in psychological development. In J. Jacobs (Ed.), *Nebraska Symposium on Motivation* (Vol. 40, pp. 1–56). Lincoln: University of Nebraska Press.

Ryan, R. M., Connell, J. P., & Deci, E. L. (1985). A motivational analysis of self-determination and self-regulation in education. In C. Ames & R. Ames (Eds.), *Research on motivation in education: Vol. 2. The classroom milieu* (pp. 13–51). London: Academic Press.

Ryan, R. M., & Grolnick, W. S. (1986). Origins and pawns in the classroom: Self-report and projective assessments of individual differences in children's perceptions. *Journal of Personality and Social Psychology, 50*, 550–558.

Sameroff, A. J., & Feil, L. A. (1985). Parental concepts of development. In I. E. Sigel (Ed.), *Parental belief systems* (pp. 83–105). Hillsdale, NJ: Erlbaum.

Sarason, I. G. (1980). Introduction to the study of test anxiety. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and application* (pp. 3–14). Hillsdale, NJ: Erlbaum.

Sarason, S. B., Davidson, K. S., Lighthall, F. F., Waite, R. R., & Ruebush, B. K. (1960). *Anxiety in elementary school children.* New York: Wiley.

Schaefer, E. S., & Edgerton, M. (1985). Parent and child correlates of parental modernity. In I. E. Sigel (Ed.), *Parental belief systems* (pp. 287–318). Hillsdale: Erlbaum.

Schiefele, U. (1991). Interest, learning, and motivation. *Educational Psychologist, 26,* 299–323.

Schiefele, U. (1996a). *Motivation und Lernen mit Texten (Motivation and learning text).* Gottingen: Hogrefe.

Schiefele, U. (1996b). Topic interest, text representation, and quality of experience. *Contemporary Educational Psychology, 21,* 3–18.

Schiefele, U., & Krapp, A. (in press). Topic interest and free recall of expository text. *Learning and Individual Differences.*

Schiefele, U., & Schreyer, I. (1994). Intrinsische Lernmotivation und Lernen. Ein Uberblick zu Ergebnissen der Forschung (Topic interest and learning. A summary of research results). *Zeitschrift fur Padagogische Psychologie, 8,* 1–13.

Schneider, B., & Coleman, J. S. (1993). *Parents, their children, and schools.* Boulder, CO: Westview Press.

Schneider, K. (in press). Intrinsisch (autotelisch) motiviertes Verhalten dargestellt an den Beispielen des Neugierverhaltens sowie verwandter Verhaltenssysteme (Intrinsically motivated action as an example of creativity and related behavioral systems). In H. Heckhausen & J. Kuhl (Eds.), *Motivation, Volition, Handlung* (Motivation, Volition, and Action). Gottingen: Hogrefe.

Schunk, D. H. (1982). Effects of effort attributional feedback on children's perceived self-efficacy and achievement. *Journal of Educational Psychology, 74,* 548–556.

Schunk, D. H. (1983). Ability versus effort attributional feedback: Differential effects on self-efficacy and achievement. *Journal of Educational Psychology, 75,* 848–856.

Schunk, D. H. (1987). Peer models and children's behavioral change. *Review of Educational Research, 57,* 149–174.

Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist, 25,* 71–86.

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist, 26,* 207–231.

Schunk, D. H. (1994). Self-regulation of self-efficacy and attributions in academic settings. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance.* Hillsdale, NJ: Erlbaum.

Schunk, D. H., & Lilly, M. V. (1982). *Attributional and expectancy change in gifted adolescents.* Paper presented at the annual meeting of the American Educational Research Association, New York.

Schunk, D. H., & Rice, J. M. (1987). Enhancing comprehension skills and self-efficacy with strategy value information. *Journal of Reading Behavior, 19,* 285–302.

Schunk, D. H., & Rice, J. M. (1989). Learning goals and children's reading comprehension. *Journal of Reading Behavior, 21,* 279–293.

Schunk, D. H., & Schwartz, C. W. (1993). Goals and progress feedback: Effects on self-efficacy and writing achievement. *Contemporary Educational Psychology, 18,* 337–354.

Schunk, D. H., & Zimmerman, B. J. (Eds.). (1994). *Self-regulation of learning and performance.* Hillsdale, NJ: Erlbaum.

Seginer, R. (1983). Parents' educational expectations and children's academic achievements: A literature review. *Merrill-Palmer Quarterly, 29,* 1–23.

Sewell, W., & Hauser, R. (1980). The Wisconsin longitudinal study of social and psychological factors in aspirations and achievements. In A. Kerckoff (Ed.), *Research in the sociology of education and socialization* (Vol. 1, pp. 59–100). Greenwich, CT: JAI Press.

Shaklee, H., & Tucker, D. (1979). Cognitive bases of development in inferences of ability. *Child Development, 50,* 904–907.

Sharan, S. (1980). Cooperative learning in small groups: Recent methods and effects on achievement, attitudes, and ethnic relations. *Review of Educational Research, 50,* 241–271.

Shell, D. F., Colvin, C., & Bruning, R. H. (1955). Self-efficacy, attribution, and outcome expectancy mechanisms in reading and writing achievement: Grade-level and achievement-level differences. *Journal of Educational Psychology, 87,* 386–398.

Sieber, R. T. (1979). Classmates as workmates: In formal peer activity in the elementary school. *Anthropology and Education Quarterly, 10,* 207–235.

Sigel, I. E. (1982). The relationship between parental distancing strategies and the child's cognitive behavior. In L. M. Laosa & I. E. Sigel (Eds.), *Families as learning environments for children* (pp. 47–86). New York: Plenum Press.

Sigel, I. E., McGillicuddy-DeLisi, A. V., & Goodnow, J. J. (Eds.). (1992). *Parental belief systems* (2nd ed.). Hillsdale, NJ: Erlbaum.

Silverman, W. K., La Greca, A. M., & Wasserstein, S. (1995). What do children worry about? Worries and their relations to anxiety. *Child Development, 66,* 671–686.

Simmons, R. G., & Blyth, D. A. (1987). *Moving into adolescence: The impact of pubertal change and school context.* Hawthorn, NY: Aldine de Gruyter.

Skinner, B. F. (1974). *About behaviorism.* New York: Knopf.

Skinner, E. A. (1985). Action, control judgments, and the structure of control experience. *Psychological Review, 92,* 39–58.

Skinner, E. A. (1990). Age differences in the dimensions of perceived control during middle childhood: Implications for developmental conceptualizations and research. *Child Development, 61,* 1882–1890.

Skinner, E. A. (1995). *Perceived control, motivation, and coping.* Thousand Oaks, CA: Sage.

Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85,* 571–581.

Skinner, E. A., Chapman, M., & Baltes, P. B. (1988). Control, means-ends, and agency beliefs: A new conceptualization and its measurement during childhood. *Journal of Personality and Social Psychology, 54,* 117–133.

Skinner, E. A., & Connell, J. P. (1986). Control understanding: Suggestions for a developmental framework. In M. M. Baltes & P. B. Baltes (Eds.), *The psychology of control and aging.* Hillsdale, NJ: Erlbaum.

Slaughter-Defoe, D. T., Nakagawa, K., Takanishi, R., & Johnson, D. J. (1990). Toward cultural/ecological perspectives on schooling and achievement in African- and Asian-American children. *Child Development, 61,* 363–383.

Slavin, R. E. (1990). Achievement effects of ability grouping in secondary schools: A best-evidence synthesis. *Review of Educational Research, 60,* 471–499.

Smith, C. P. (1969). *Achievement-related motives in children.* New York: Russell-Sage Foundation.

Solomon, D., Houlihan, K. A., Busse, T. V., & Parelius, R. J. (1971). Parent behavior and child academic achievement, achievement striving, and related personality characteristics. *Genetic Psychology Monograph, 83,* 173–273.

Spencer, M. B., & Markstrom-Adams, C. (1990). Identity processes among racial and ethnic minority children in America. *Child Development, 61,* 290–310.

Spencer, S., & Steele, C. M. (1995). *Under suspicion of inability: Stereotype vulnerability and women's math performance.* Manuscript submitted for publication.

Spielberger, C. D. (1966). Theory and research on anxiety. In C. D. Spielberger (Ed.), *Anxiety and behavior* (pp. 3–20). New York: Academic Press.

Stattin, H., & Magnusson, D. (1990). *Pubertal maturation in female development.* Hillsdale, NJ: Erlbaum.

Steele, C. M. (1992, April). Race and the schooling of black Americans. *The Atlantic Monthly.*

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African-Americans. *Journal of Personality and Social Psychology, 69,* 797–811.

Stein, A. H., & Bailey, M. M. (1973). The socialization of achievement orientation in females. *Psychological Bulletin, 80,* 345–366.

Steinberg, L., Dornbusch, S., & Brown, B. (1992). Ethnic differences in adolescents' achievements: An ecological perspective. *American Psychologist, 47,* 723–729.

Steinberg, L., Lamborn, S. D., Dornbusch, S. M., & Darling, N. (1992). Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed. *Child Development, 63,* 1266–1281.

Stevens, R. J., & Slavin, R. E. (1995). The cooperative elementary school: Effects on students' achievement, attitudes, and social relations. *American Educational Research Journal, 32,* 321–351.

Stevenson, D. L., & Baker, D. P. (1987). The family-school relation and the child's school performance. *Child Development, 58,* 1348–1357.

Stevenson, H. W., Chen, C., & Uttal, D. H. (1990). Beliefs and achievement: A study of black, white, and Hispanic children. *Child Development, 61,* 508–523.

Stevenson, H., Lee, S.-Y., Chen, C., Lummis, M., Stigler, J., Fan, L., & Ge, F. (1990). Mathematics achievement of children in China and the United States. *Child Development, 61,* 1053–1066.

Stipek, D. J. (1984). The development of achievement motivation. In R. Ames & C. Ames (Eds.), *Research on motivation in education* (Vol. 1, pp. 145–174). New York: Academic Press.

Stipek, D. J. (1993). *Motivation to learn.* Boston: Allyn & Bacon.

Stipek, D. J. (1996). Motivation and instruction. In R. C. Calfee & D. C. Berliner (Eds.), *Handbook of educational psychology.* New York: Macmillan.

Stipek, D. J., & Daniels, D. H. (1988). Declining perceptions of competence: A consequence of changes in the child or in the educational environment? *Journal of Educational Psychology, 80,* 352–356.

Stipek, D. J., & Gralinski, H. J. (1991). Gender differences in children's achievement-related beliefs and emotional responses to success and failure in mathematics. *Journal of Educational Psychology, 83,* 361–371.

Stipek, D. J., & Hoffman, J. M. (1980). Children's achievement-related expectancies as a function of academic performance histories and sex. *Journal of Educational Psychology, 72,* 861–865.

Stipek, D. J., & Mac Iver, D. (1989). Developmental change in children's assessment of intellectual competence. *Child Development, 60,* 521–538.

Stipek, D. J., Recchia, S., & McClintic, S. M. (1992). Self-evaluation in young children. *Monographs of the Society for Research in Child Development, 57*(2, Serial No. 226).

trauss, S., & Subotnik, R. F. (1991). *Gender differences in classroom participation and achievement: An experiment involving advanced placement calculus classes, Part I.* Unpublished manuscript, Hunter College of the CUNY, New York.

als, J., & Sanders, G. S. (1982). Self-evaluation through social comparison: A developmental analysis. In L. Wheeler (Ed.), *Review of personality and social psychology* (Vol. 3, pp. 171–197). Beverly Hills, CA: Sage.

aylor, R. D., Casten, R., Flickinger, S., Roberts, D., & Fulmore, C. D. (1994). Explaining the school performance of African-American adolescents. *Journal of Research on Adolescence, 4,* 21–44.

evan, R. C., & McGhee, P. E. (1972). Childhood development of fear of failure motivation. *Journal of Personality and Social Psychology, 21,* 345–348.

igen, K. H. (1987). Intrinsic interest and the novelty-familiarity interaction. *Scandinavian Journal of Psychology, 28,* 199–210.

rman, L. M. (1926). *Genetic studies of genius* (Vol. 1). Stanford, CA: Stanford University Press.

ompson, M. S., Alexander, K. L., & Entwisle, D. R. (1988). Household composition, parental expectations, and school achievement. *Social Forces, 67,* 424–451.

orkildsen, T. A., Nolen, S. B., & Fournier, J. (1994). What is fair? Children's critiques of practices that influence motivation. *Journal of Educational Psychology, 86,* 475–486.

orndike, E. L. (1931). *Human learning.* New York: Century.

ias, S. (1985). Test anxiety: Interference, deficient skills, and cognitive capacity. *Educational Psychologist, 20,* 135–142.

ias, S. (1994). Interest, prior knowledge, and learning. *Review of Educational Research, 64,* 37–54.

t, E. (1990). Entwicklung des Interesses (Development of interests). In H. Hetzer (Ed.), *Angewandte Entwicklungspsychologie des Kindes- und Jugendalters (Applied Developmental Psychology of Children and Youth).* Wiesbaden: Quelle & Meyer.

nan, E. C. (1932). *Purposive behavior in animals and men.* New York: Appleton-Century-Crofts.

ers, R. M. W. (1978). *Children's interests.* Unpublished manuscript, Michigan University, College of Education, Kalamazoo, MI.

ilco, G. R., Atkinson, E. P., & Atkinson, J. M. (1977, November). *The transition of students from primary to secondary school.* Paper presented at the annual conference of the Australian Association for Research in Education, Canberra.

ett, E. J., & Moos, R. H. (1974). Personal correlates of contrasting environments: Student satisfaction in high school classrooms. *American Journal of Community Psychology, 2,* 1–12.

Tyler, L. E. (1955). The development of "vocational interests": I. The organization of likes and dislikes in ten-year-old children. *Journal of Genetic Psychology, 86,* 33–41.

Vanfossen, B. E., Jones, J. D., & Spade, J. Z. (1987). Curriculum tracking and status maintenance. *Sociology of Education, 60,* 104–122.

Vasey, M. W., & Daliedon, E. L. (1994). Worry in children. In G. Davey & F. Tallis (Eds.), *Worrying: Perspectives on theory, assessment, and treatment* (pp. 185–207). Chichester, England: Wiley.

Veroff, J. (1969). Social comparison and the development of achievement motivation. In C. P. Smith (Ed.), *Achievement-related motives in children* (pp. 46–101). New York: Russell-Sage Foundation.

Vispoel, W. P., & Austin, J. R. (1995). Success and failure in junior high school: A critical incident approach to understanding students' attributional beliefs. *American Educational Research Journal, 32,* 377–412.

Wade, S. E. (1992). How interest affects learning from text. In K. A. Renninger, S. Hidi, & A. Krapp (Eds.), *The role of interest in learning and development* (pp. 255–277). Hillsdale, NJ: Erlbaum.

Wagner, B. M., & Phillips, D. A. (1992). Beyond beliefs: Parent and child behaviors and children's perceived academic competence. *Child Development, 63,* 1380–1391.

Walberg, H. J., House, E. R., & Steele, J. M. (1973). Grade level, cognition, and affect: A cross-section of classroom perceptions. *Journal of Educational Psychology, 64,* 142–146.

Ward, B. A., Mergendoller, J. R., Tikunoff, W. J., Rounds, T. S., Dadey, G. J., & Mitman, A. L. (1982). *Junior high school transition study: Executive summary.* San Francisco: Far West Laboratory.

Wehlage, G. (1989). Dropping out: Can schools be expected to prevent it? In L. Weis, E. Farrar, & H. Petrie (Eds.), *Dropouts from school.* Albany, NY: SUNY Press.

Wehlage, G., Rutter, R., Smith, G., Lesko, N., & Fernandez, R. (1989). *Reducing the risk: Schools as communities of support.* Philadelphia: Falmer Press.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92,* 548–573.

Weiner, B. (1990). History of motivation research in education. *Journal of Educational Psychology, 82,* 616–622.

Weiner, B. (1992). *Human motivation: Metaphors, theories, and research.* Newbury Park, CA: Sage.

Weiner, B., Frieze, I., Kukla, A., Reed, L., Rest, S., & Rosenbaum, R. M. (1971). *Perceiving the causes of success and failure.* Morristown, NJ: General Learning Press.

Weiner, B., Russell, D., & Lerman, D. (1979). The cognition-emotion process in achievement-related contexts. *Journal of Personality and Social Psychology, 37,* 1211–1220.

Weinstein, C. E., & Mayer, R. E. (1986). The teaching of learning strategies. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.). New York: Macmillan.

Weinstein, R. S. (1989). Perception of classroom processes and student motivation: Children's views of self-fulfilling prophecies. In R. E. Ames & C. Ames (Eds.), *Research on motivation in education* (Vol. 3). New York: Academic Press.

Weinstein, R. S., Marshall, H. H., Sharp, L., & Botkin, M. (1987). Pygmalion and the student: Age and classroom differences in children's awareness of teacher expectations. *Child Development, 58,* 1079–1093.

Weisz, J. P. (1984). Contingency judgments and achievement behavior: Deciding what is controllable and when to try. In J. G. Nicholls (Ed.), *The development of achievement motivation* (pp. 107–136). Greenwich, CT: JAI Press.

Wentzel, K. R. (1991a). Relations between social competence and academic achievement in early adolescence. *Child Development, 62,* 1066–1078.

Wentzel, K. R. (1991b). Social competence at school: Relation between social responsibility and academic achievement. *Review of Educational Research, 61,* 1–24.

Wentzel, K. R. (1993). Does being good make the grade? Social behavior and academic competence in middle school. *Journal of Educational Psychology, 85,* 357–364.

Wentzel, K. R. (1994). Relations of social goal pursuit to social acceptance, and perceived social support. *Journal of Educational Psychology, 86,* 173–182.

Wentzel, K. R. (in press). Social goals and social relationships as motivators of school adjustment. In J. Juvonen & K. R. Wentzel (Eds.), *Social motivation: Understanding school adjustment.* New York: Cambridge University Press.

Wentzel, K. R., & Feldman, S. S. (1993). Parental predictors of boys' self-restraint and motivation to achieve at school: A longitudinal study. *Journal of Early Adolescence, 13,* 183–203.

Wentzel, K. R., Feldman, S. S., & Weinberger, D. A. (1991). Parental child rearing and academic achievement in boys: The mediational role of social-emotional adjustment. *Journal of Early Adolescence, 11,* 321–339.

Wentzel, K. R., Weinberger, D. A., Ford, M. E., & Feldman, S. S. (1990). Parental childrearing and academic achievement in boys: The mediational role of social-emotional adjustment. *Journal of Early Adolescence, 11,* 321–339.

Werner, H. (1957). The concept of development from a comparative and organismic point of view. In D. D. Harris (Ed.), *The concept of development.* Minneapolis: University of Minnesota Press.

White, R. H. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66,* 297–333.

Wigfield, A. (1994). Expectancy-value theory of achievement motivation: A developmental perspective. *Educational Psychology Review, 6,* 49–78.

Wigfield, A., & Asher, S. R. (1984). Social and motivational influences on reading. In P. D. Pearson, R. Barr, M. L. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (pp. 423–452). New York: Longman.

Wigfield, A., & Eccles, J. S. (1989). Test anxiety in elementary and secondary school students. *Educational Psychologist, 24,* 159–183.

Wigfield, A., & Eccles, J. (1992). The development of achievement task values: A theoretical analysis. *Developmental Review, 12,* 265–310.

Wigfield, A., & Meece, J. (1988). Math anxiety in elementary and secondary school students. *Journal of Educational Psychology, 80,* 210–216.

Wigfield, A., Eccles, J., 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., & Pintrich, P. R. (1996). Development between the ages of eleven and twenty-five. In D. C. Berliner & R. C. Calfee (Eds.), *The handbook of educational psychology.* New York: Macmillan.

Wigfield, A., Eccles, J. S., Yoon, K. S., Harold, R. D., Arbreton, A., Freedman-Doan, K., & Blumenfeld, P. C. (1996). *Changes in children's competence beliefs and subjective task values across the elementary school years: A three-year study.* Manuscript submitted for publication.

Willis, P. L. (1977). *Learning to labor: How working class kids get working class jobs.* Driffield, England: Nafferton.

Wine, J. D. (1971). Test anxiety and direction of attention. *Psychological Bulletin, 76,* 92–104.

Wine, J. D. (1980). Cognitive-attentional theory of test anxiety. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications* (pp. 349–385). Hillsdale, NJ: Erlbaum.

Winne, P. H., & Marx, R. W. (1989). A cognitive-processing analysis of motivation with classroom tasks. In C. Ames & R. Ames (Eds.), *Research on motivation in education* (Vol. 3). San Diego: Academic Press.

Winston, C., Eccles, J. S., & Senior, A. M. (in press). The utility of an expectancy/value model of achievement for understanding academic performance and self-esteem in African-American and European-American adolescents. *Zeitschrift Fur Padagogische Psychologie (German Journal of Educational Psychology).*

Winterbottom, M. R. (1958). The relation of need for achievement to learning experiences in independence and mastery. In

. W. Atkinson (Ed.). *Motives in fantasy, action and society* pp. 453–478). Princeton, NJ: Van Nostrand.

, D. K., & Eccles, J. S. (1988). Parent perceptions and attri- outions for children's math achievement. *Sex Roles, 19,* 317–333.

, D. K., & Flanagan, C. (1985). Family environments and elf-consciousness in early adolescence. *Journal of Early Adolescence, 5,* 59–68.

on, K. S., Wigfield, A., & Eccles, J. S. (1993, April). *Causal relations between mothers' and children's beliefs about math ability: A structural equation model.* Paper presented at the annual meeting of the American Educational Research Association, Atlanta.

aniss, J. (1980). *Parents and peers in social development.* Chicago: University of Chicago.

Zonc, R. B. (1968). Attitudinal effects of mere exposure. *Jour- nal of Personality and Social Psychology, 9,* 1–27.

tz, S., & Chassin, L. (1983). Cognitions of test anxious chil- dren. *Journal of Consulting and Clinical Psychology, 51,* 526–534.

tz, S., & Chassin, L. (1985). Cognitions of test anxious chil- dren under naturalistic test-taking conditions. *Journal of Consulting and Clinical Psychology, 53,* 393–401.

gler, E. F., & Child, I. L. (1969). Socialization. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (Vol. 3, pp. 450–589). Reading, MA: Addison-Wesley.

Zigler, E. F., & Turner, P. (1982). Parent and day care workers: A failed partnership. In E. F. Zigler & E. W. Gordon (Eds.), *Day care: Scientific and sound policy issues* (pp. 174–182). New York: Free Press.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated learning. *Journal of Educational Psychology, 81,* 329–339.

Zimmerman, B. J. (1994). Dimensions of academic self-regulation: A conceptual framework for education. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance.* Hillsdale, NJ: Erlbaum.

Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal, 29,* 663–676.

Zimmerman, B. J., & Bonner, S. (in press). A social cognitive view of strategic learning. In C. E. Weinstein & B. L. McCombs (Eds.), *Strategic learning: Skill, will, and self-regulation.* Hillsdale, NJ: Erlbaum.

Zimmerman, B. J., & Martinez-Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. *American Educational Research Journal, 23,* 614–628.

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.