CHAPTER 12

Competence Assessment, Competence, and Motivation between Early and Middle Childhood

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Contemporary theories of achievement motivation emphasize the influence of people's sense of competence on their achievement-related strivings and behaviors throughout the lifespan (Dweck, 1986; Nicholls, 1989). In this chapter, I focus on the early development of self-evaluation and on implications for children's motivation and behavior in achievement settings. This endeavor is intriguing, because, in many respects, the history of theory and research on the development of self-evaluative judgments and understandings corresponds to that on cognitive development in general. On the one hand, early studies revealed systematic age-related advances in the ways in which children construed achievement-related concepts, evaluated their competence, and set goals or formed expectations for the future. Moreover, these seemed to reflect qualitative transformations in thought and judgment that corresponded rather closely to major Piagetian shifts from preoperational to concrete operational to formal operational thought at about ages 7 and 11, respectively. In keeping with the centrality of strivings for and conceptions of competence in cognitively based theories of motivation, several researchers then proposed equivalent developmental transformations also in children's achievement motivation and behavior. On the other hand, in keeping with theoretical and empirical challenges to the strong structural assumptions of cognitive developmental theory, and to its conceptualization of the limitations of preschool thought in particular, studies began to reveal significant variability in achievement-related cognitions and motives between individuals and across contexts already in the early years.

In the first section of this chapter, I review "structural deficit" approaches to the early development of achievement-related cognitions and motives, and the relations between them. In the second and third sections, I discuss how alternative approaches that emphasize the ways in which children construct knowledge, strategies, and motives, within

the contexts of their daily lives, challenge earlier assumptions and generate a different picture of young children's self-evaluative capacities and motives, and of the factors that influence competence and motivation throughout childhood. In the final section, I address some implications of this review and suggest guidelines for promoting adaptive self-evaluation, self-regulation, and motivation in both younger and older children.

STRUCTURAL DEFICIT APPROACHES TO THE DEVELOPMENT OF SELF-EVALUATION AND MOTIVATION BETWEEN EARLY AND MIDDLE CHILDHOOD

Competence Assessment

Both the earlier and some more recent reviews of the development of competence-related perceptions, judgments, and understandings reached similar conclusions that these aspects are unrealistically high, undifferentiated, and relatively unaffected by experience and relevant information during the preschool years, and become lower, more realistic, more differentiated, and more responsive to various kinds of information during middle childhood (Harter, 1999; Nicholls, 1990; Stipek, 1984). These conclusions were based on findings from several kinds of empirical designs and data. One tradition, notably represented by the research of Susan Harter and her associates, has examined age trends in children's perceptions of their own competence. In general, studies yielded four main groups of findings (see Harter, 1990, 1999, for reviews). First, they indicated that perceived competence tended to be high during the preschool years and to decline with age, with relatively marked decreases between about ages 7 and 9, and again between about ages 11 and 13. Second, perceptions tended to become more differentiated and domain-specific with age, as reflected in both the factor structure of self-reports and intercorrelations between factors. For example, Harter and Pike (1984) found that 4- to 7-year-olds could make judgments about their cognitive competence, physical competence, social acceptance, and behavioral conduct, but judgments loaded on only two, cognitive–physical versus social–behavioral, factors. The number of distinct domains then increased steadily with age from at least five in middle childhood to at least 11 among adults (Harter, 1990). Third, perceptions also seemed to become more integrated with age. Thus, Harter and her associates found that the more general concept of global self-worth did not emerge before middle childhood (Harter, 1990). In a similar vein, children's spontaneous self-descriptions emphasized concrete actions and skills during the preschool years and did not begin to incorporate reference to traits before middle childhood (Damon & Hart, 1988). Fourth, as one would expect if perceptions become more differentiated and integrated with age, correlations between children's perceived and actual cognitive competence, as reflected in test scores or teacher ratings, were low before about age 8 and increased thereafter (Eshel & Klein, 1981; Wigfield et al., 1997).

Another research tradition has used experimental designs to examine age trends in children's self-evaluative responses to success or failure. Typically, children received information about their performance on one or more trials of some task and were then asked to (1) indicate how well they expected to do on subsequent trial; or (2) asked to evaluate their performance, ability, or affect; or (3) were observed on behavioral measures such as expression of affect or persistence, or performance on a subsequent trial or different task. Here too, studies documented rather similar and converging developmental patterns across measures. Regarding expectations, the general finding was that they were equally high after both success and failure before about age 5–6. In one representative study, Stipek and Hoffman (1980) found that expectations among 3- to 4-year-olds were close to the maximum, regardless of whether they had received perfect scores, low but improving scores, or uniformly low scores on four previous trials. Expectations after failure then declined steadily between ages 5 and 8. Moreover, Rholes, Blackwell, Jordan, and Walters (1980) documented a corresponding decline between ages 5 and 11 in children's willingness to persist after failing on a series of hidden figures problems.

Perhaps most attention has been addressed to the development of self-appraisal,

using a basic paradigm in which children perform a task in a setting that provides some evaluative standard and then rate their performance or ability. Studies revealed age trends similar to those for general perceptions of competence, whereby self-appraisal was very positive during the preschool years and declined during the early elementary school years (e.g., Ruble, Grosovsky, Frey, & Cohen, 1992). Experimental procedures also added the significant information, consistent with data yielded by studies of expectancy, that young children's evaluation of their performance or ability was relatively unaffected by relevant information. In most studies, this consisted of social comparison information indicating superior or inferior performance relative to others. Such information did not reliably influence performance–appraisal before about age 7, and did not influence ability–appraisal until even later (Aboud, 1985; Ruble, Boggiano, Feldman, & Loebl, 1980).

Interpretation of these rather consistent age-related changes, coinciding as they did with the transition from preoperational to concrete operational thought at about age 6, rather naturally tended to emphasize the role of structural changes in children's cognitive capacities and understandings. Specifically, interpretations tended to focus on how one or another feature of young children's thinking about their competence reflected one or another general limitation of preschool thought. In this case, a brief description of these limitations is in order.

Most generally, Piaget (1926/1928; 1926/1930) claimed that young children's lack of operations renders it difficult for them to distinguish and coordinate between different aspects of events and phenomena, and between phenomena and their perceptions of them. As a result, preoperational children do not form coherent concepts. Instead, their thought is intuitive or transductive rather than logical, as reflected in the dominance of reasoning by perceptions and appearances, in the tendency to reason from particular to particular, and in the instability and incoherence of successive judgments. It is also egocentric, a property most generally defined as confusion of self with nonself and typically examined in terms of the capacity to consider other perspectives or points of view. For example, in the famous three-mountain problem, preoperational children initially did not understand that a topographical scene would look different from another spatial location (Piaget, Inhelder, & Szaminska, 1948/1960). In a similar vein, Piaget maintained that preoperational thought is centered, such that young children cannot simultaneously consider more than one dimension, or variable, and do not, for example, consider both rows and columns in multiple-classification tasks (Odom, Astor, & Cunningham, 1975).

Against this background, it seemed that one could interpret young children's competence-related cognitions and judgments as particular cases of their general difficulties in differentiating and coordinating between perceptions, representations, and reality, between successive judgments, and between multiple dimensions, perspectives, or causes. For example, Veroff (1969) attributed the apparent failure of young children to use social comparison information for self-appraisal to their difficulty in distinguishing and coordinating between self–other perspectives and their corresponding tendency to focus on their own outcome alone. In a similar vein, the relatively late emergence of global self-worth and of appropriate ability, as compared with performance–appraisal, has been attributed to the role of operational thought in overcoming earlier tendencies to judge from particular to particular and corresponding limitations in integrating successive events and perceptions (Harter, 1999).

Such analyses do not, however, explain why young children's judgments seemed to be not only unrealistic but also consistently positive. Moreover, this seemed to be the case also when children performed poorly relative to prior trials or to some objective standard (Ruble et al., 1992; Stipek & Hoffman, 1980), even though some researchers have proposed that standards that do not require coordination of self–other perspectives might be more accessible to preoperational children (Dweck & Elliot, 1983; Nicholls & Miller, 1983; Stipek & Mac Iver, 1989; Suls & Mullen, 1982). To address this problem, Stipek (1984) returned to Piaget's theory and proposed a "wishful thinking" interpretation of young children's unrealistically high expectations as reflecting a particular case of their difficulty in distinguishing between reality and desire. According to Piaget (1926/1930), one consequence of this failure of differentiation is that young children have a highly exaggerated and overgeneralized sense of personal efficacy that makes its own contribution to their limited understanding of causality. Stipek reasoned that, in this case, positive biases in young children's self-related judgments may reflect their general tendency to confuse what they can do with what they want to do, and to focus mainly on the latter.

To summarize, children's inferences and judgments about their own competence seemed to accord well with their reasoning in other domains. It is, however, important to remember that Piaget's main focus was on the intensive examination of children's reasoning. Thus, identifying underlying cognitive structures and developmental transformations does not itself explicate the features and dynamics of children's reasoning about specific concepts. The development of achievement-related concepts has been studied most systematically by John Nicholls and his colleagues. In a series of studies, they applied Piaget's clinical method and assumption that concept formation progresses through a series of age-related differentiations between related concepts to examine the development of children's understanding of ability. They found that before about age 5–6, most children did not differentiate between skill and luck, and expected effort to be similarly efficacious in improving performance on both skill and luck (guessing) tasks (Nicholls & Miller, 1985). In addition, children did not understand that puzzles that fewer, rather than more, peers can solve are more difficult and require more ability before about age 6–7 (Nicholls & Miller, 1983). The authors concluded that younger children had not acquired the "normative conception of ability," defined as the understanding that others' outcomes are diagnostic of ability. In a similar vein, Nicholls (1978) found that preschool children did not differentiate between effort, ability, and outcome, and tended to center on a single factor, typically, effort. Thus, they judged children who tried harder than others to be smarter, even if they performed less well, and inferred that children who performed better must also have tried harder, even if they did not appear to be trying at all. This study also demonstrated further developments in children's differentiation of ability and related concepts. Thus, what Nicholls termed the "mature conception of ability," which rests on the understanding that individual differences in ability influence the efficacy of effort, emerged only at about age 11–12.

This research program provided a conceptual bridge, which is actually rather rare in developmental research, between cognitive structures and cognitive behaviors, or judgments. If young children do not distinguish between outcomes over which they have more or less control, and do not understand that task difficulty and personal ability place limits on the efficacy of effort, it makes sense that they expect to do very well in the future, regardless of current outcomes, if they try really hard (see also Stipek & Mac Iver, 1989). In a similar vein, if young children do not understand that others' outcomes are diagnostic of ability, it makes sense that they do not use social comparison information to evaluate their current capacities or regulate effort. Moreover, if they do not actually have any conception of ability as distinct, for example, from luck and effort, it is not surprising that their perceptions of their own competence are poorly differentiated, are not organized into general traits, including ability, and are poorly correlated with objective criteria.

Ignorance Is Bliss: Achievement-Related Behavior and Motivation in Early Childhood

The evidence and analyses just reviewed seemed to have some rather clear implications for understanding how not only concepts and judgments but also competence-related motives and behaviors should change between early and middle childhood. The prevailing assumption, well-captured in Nicholls and Miller's (1984) witty chapter title, "Development and Its Discontents," was that the immature reasoning and conceptions of young children may actually be associated with more adaptive behaviors and motivation than are the more adequate understandings of older children and adults (see also Butler, 1989a, 1989b; Dweck & Elliot; 1983; Stipek, 1984). First, researchers reasoned that younger children should be less vulnerable to the negative effects of fail-

ure. Thus, their apparent failure to consider negative information should render them less aware of deficiencies in their performance. Moreover, even when they realize that they have performed poorly, their belief in the primacy of effort, high perceived competence, and failure to understand that current outcomes have implications for their ability should converge in maintaining expectations that greater effort will ensure future success. Thus, Dweck and Elliot (1983) proposed that young children are inclined to respond to failure by increasing effort, persistence, and strategic search or, in short, with adaptive attempts to overcome difficulty and attain mastery. Moreover, they should not as yet be developmentally capable of displaying the alternative, helpless pattern identified in studies with older children, which is characterized by decrements in performance and persistence, and negative affect and self-perceptions (Diener & Dweck, 1978).

Second, researchers reasoned that the limitations of preschool children's thought have adaptive consequences for their achievement motivation. Achievement goal theorists distinguish between task (Nicholls, 1989) or learning goals (Dweck, 1986) that orient people to strive to learn and acquire worthwhile skills and understandings, and ego, or performance, goals, that orient them to strive to demonstrate superior, or disguise inferior, ability. On the whole, task involvement seems to be associated with more adaptive processes and outcomes than ego involvement, and especially with more constructive responses to challenge and difficulty (see reviews by Ames, 1992; Butler, 2000). Adults may display either kind of motivational involvement as a function of both their personal task versus ego orientations and contextual emphases on the importance of learning versus normative success (Dweck, 1986, Nicholls, 1989). In contrast, Nicholls and Miller (1984) reasoned that young children, who do not have even a partially differentiated or trait-like conception of ability, can strive to learn and acquire competence but are incapable of organizing achievement strivings around concerns with their ability. Although acquisition of the normative concept of ability by about age 7 may orient children to seek satisfaction from outperforming others, Nicholls and Miller reasoned that only with the acquisition of the mature conception of ability do young adolescents understand that failing to do so has implications for their ability and future performance. Thus, only at this point can they also exhibit the maladaptive responses to failure typically associated with ego involvement.

On the one hand, proposals that young children's cognitive limitations also "limit" them to more, rather than less, adaptive patterns of motivation and behavior accorded well with the empirical evidence of their buoyant optimism and positive self-appraisals and expectations reviewed earlier. On the other hand, there are grounds for questioning whether young children are really such incompetent self-evaluators as the opening review implies, and whether they are necessarily invulnerable to failure. First, young children do not seem to behave in daily life as if they are quite so obtuse about their capacities. Left to their own devices, they do not usually attempt tasks that they cannot do, and there would be far more playground accidents if they always overestimated their abilities. In addition, young children often respond to difficulty with distress and frequently abandon challenging activities. More generally, it is not clear how they can select activities conducive to developing skills and effective interactions with the environment, without some sense of their present capacities and some interest in evaluating them. Second, the picture of young children as consistently incompetent self-evaluators across different measures, tasks, domains, and contexts is somewhat strange in view of converging evidence that their thought in other domains is both more variable and less limited than Piaget claimed. Third, developmental analyses that emphasize young children's inflated judgments have not always considered that adults also tend to overestimate their abilities and performance in ways that cannot be attributed to structural cognitive deficits.

In the next sections, I extrapolate from developments in theory and research on early cognitive development to identify other, nonstructural factors that might both account for the age-related trends in children's knowledge about their own competence reviewed earlier and indicate when young children might be quite knowledgeable about their capacities and skillful at evaluating them. I then examine motivational influences on the early development of self-evaluative strategies and judgments.

THE DEVELOPMENT OF COMPETENCE AND COMPETENCE ASSESSMENT REVISITED: FROM INTERNAL STRUCTURES TO THE ACQUISITION OF KNOWLEDGE AND STRATEGIES IN CONTEXT

It is interesting that the cognitive-developmental analyses reviewed earlier were formulated during a period marked by serious theoretical and empirical challenges to Piaget's basic assumptions regarding the primacy of structure over content, strategy, and context, the internal consistency of thought, and the existence of universal stages of cognitive development. In brief, studies began to yield converging evidence of substantial variability in reasoning across tasks, domains, contexts, and, thus, within stages. Interpretations of the unevenness of thought range from neo-Piagetian emphases on stage-like transformations within, but not necessarily between, domains (Fischer, 1980) or for tasks that share the same logical structure and require equivalent levels of knowledge (Case, 1985), to approaches that reject the notion of stages and emphasize continuous advances in thought, information-processing capacities, and strategies within domains and contexts (Siegler, 1996). Most, however, understand the basic constructivist assumption that cognition develops through action as implying that children address the challenges and dilemmas of daily life by developing understandings and strategies that are, at most, weakly restricted by cognitive structures. Thus, theoretical analyses increasingly emphasized processing capacities, strategies, and domains rather than structures and stages, and research increasingly focused on the ways in which children acquire and use knowledge in specific domains, during specific interactions, and in specific contexts.

Before reviewing how researchers have applied these ideas to reexamining early competence assessment, it is relevant to ask how they have affected our understanding of young children in general. Although criticisms of cognitive-developmental theory apply at all ages, there is particular consensus that Piaget overestimated the limitations of the preschool mind and the degree to which these constrain concept formation and strategy acquisition. In brief, studies repeatedly indicated that young children displayed sophisticated, and apparently operational, thought in domains in which they had more, rather then less, knowledge, in contexts that were familiar, rather than novel or artificial, and for tasks that placed less, rather than more, load on memory or attentional capacities (see Flavell, 1985, 1999, and Siegler, 1996, for relevant reviews). Particularly pertinent in view of early assumptions that young children cannot coordinate self–other perspectives, children appear to be far less egocentric than Piaget maintained (Gelman, 1979). In daily life, they engage in extended dialogues and cooperative activity with peers, and adopt, maintain, and coordinate roles in sociodramatic play. They also develop a theory of mind and the understanding that others have knowledge, desires, and intentions that may differ from their own, and are able to adapt their own behavior and communications accordingly, at least to some extent.

These discrepancies between the Piagetian and post-Piagetian young child can be explained in terms of two main kinds of factors. First, the latter, and, incidentally, the apparently less egocentric young Soviet children described at about the same time by Vygotsky (1934/1978), typically have earlier and more intensive peer experience. The role of experience in the development of social cognition was confirmed in an early study in which Hollos and Cowan (1973) found that children growing up on isolated Norwegian farms demonstrated poorer social perspective taking, but not conservation, relative to their urban counterparts. These findings accorded well with other evidence that the level of children's thinking varies widely across domains, depending in large part on their knowledge base. Domain-specific knowledge and strategies for applying this knowledge vary in keeping with individual differences in experience and interests (Chi

& Koeske, 1983), but is more consistently influenced by the challenges, strategies, and solutions provided or scaffolded by young children's typical environments. For example, both age trends and cultural differences in children's verbal recall have been attributed to the influence of formal schooling on the acquisition of verbal rehearsal strategies (Rogoff & Mistry, 1990). Moreover, specific training in such strategies did indeed result in superior recall (Keeney, Canizzo, & Flavell, 1967). Second, Piaget's emphasis on the formal properties of logic and reasoning frequently led researchers to present young children with unfamiliar problems that were also rather demanding in terms of the amount and kinds of information that children needed to process as a prerequisite for engaging with the problem itself. Thus, in domains as diverse as causal reasoning (Bullock & Gelman, 1979) and perspective taking (Borke, 1975), young children consistently displayed higher levels of understanding when tasks, dilemmas, and procedures were less, rather than more, complex.

Regarding competence assessment, one implication is that self-appraisal may indeed become more accurate, differentiated, and responsive to relevant information with age, in large part, however, because of age-related changes in children's typical experiences and contexts, rather than their internal cognitive structures. Another implication is that researchers may have used methodologies that led them to underestimate the self-evaluative capacities of young children. In this case, it is important to analyze both the contexts within which younger and older children develop self-evaluative knowledge and strategies, and the contexts in which these have been studied. Moreover, one would expect variations in both to influence children's self-evaluative competence, as they do their competence in other domains.

Contexts for Developing Knowledge about Competence

An ethnographic study that followed Israeli children during the transition from kindergarten to elementary school indicated that these provided very different contexts for the development of competence and competence assessment (Baumer, 1998). In brief, in K1, children spent most of their time engaging in unstructured, expressive, and creative activities such as free play and arts and crafts. They also had considerable freedom to choose activities, to engage in them however they liked, and to abandon them whenever they wanted. As a result, they were rarely required to meet performance standards or persist until they did so. In contrast, in grade 1, they spent most of the day working on structured assignments with clearly defined procedures and solutions, which they were required to complete. Other parts of the day were devoted to direct instruction in math and reading in small ability groups. In addition, K1 teachers rarely commented on children's work and tended to praise children indiscriminately when they did so. Indeed, Baumer documented cases in which children themselves expressed dissatisfaction with, for example, a painting, and asked for new materials, so that they could try again, but their teachers responded by trying to persuade them that their work was fine as it was. In contrast, grade 1 teachers frequently evaluated children's work and were increasingly likely, as the year progressed, to compare children's work with that of peers and to require them to repeat unsatisfactory work. Thus, entrance into first grade exposed children for the first time to an environment in which they were required to acquire and demonstrate specific skills, procedures, and understandings as they and their classmates worked on the same structured tasks, at the same time, with differing degrees of proficiency.

Cognitive-developmental theorists were not oblivious to such age-related changes in children's learning environments, but they tended to emphasize the degree to which these converged with and reinforced transformations in the structure of children's thought. Thus, Nicholls (1989) proposed that increasing emphases on normative evaluation and interpersonal competition in elementary school reinforce the concerns with outperforming others that are enabled by children's acquisition of the normative concept of ability, but do not play a major role in their acquisition of this concept. Others assigned typical changes in the structure and social context of activity a more direct role

in the development of self-evaluative knowledge and strategies (Higgins & Parsons, 1983; Stipek & Mac Iver, 1989). These researchers noted that it is both difficult and rather inappropriate to evaluate competence for unstructured, free-flowing activities, such as play or painting, that do not have clear and agreed outcomes or standards for evaluating them. In contrast, when children work on identical, structured assignments that focus on clearly defined skills, it is both feasible and functional to monitor and evaluate performance relative to task requirements, prior work, or others' outcomes, especially when such evaluative standards, strategies, and judgments are also modeled by significant adults. In this case, it is not surprising that children's knowledge about performance standards and their sense that they could judge their own work independently increased during middle childhood (Harter, 1981). Finally, intensive experience with different school domains, such as reading, math, music, sports, and so on, should enable children both to develop stable perceptions of competence within each domain and to distinguish between competencies in different domains.

If age-related changes in contexts can explain, at least in part, why perceptions of competence become more realistic and differentiated, and more stable, integrated, and trait-like with age, such perceptions should also be sensitive to within-age variations in context. Few studies have directly examined the influence of relevant natural variations in early childhood environments. In one exception, Stipek and Daniels (1988) examined the perceived scholastic competence of two groups of 5- to 6-year-olds, who attended either a "developmental" kindergarten, similar to that described by Baumer (1998), or an "academic" kindergarten, similar to typical elementary school classrooms. Results confirmed that perceptions were less positive and more highly correlated with teacher ratings in the academic than in the developmental kindergarten or in most other studies. Another study, in which we examined acquisition of the normative concept of ability among children at ages 4–8, who lived either in Israeli towns or on kibbutzim, indicated that experience in context also affected concept development (Butler & Ruzany, 1993). A unique feature of kibbutz child rearing at the time was that it took place mainly in the peer group rather than the family. From the age of 3 months, children lived with a small group of same-age peers whom they could observe as they acquired physical and cognitive skills, and learned to dress, eat alone, participate in household chores, and so on. We reasoned that this intensive experience might result in relatively early appreciation of the relevance of individual differences for evaluating competence. As expected, kibbutz children acquired the normative concept about a year earlier than did urban children.

To summarize, school environments do seem to change such that, compared with older children, younger children typically have less knowledge about the meaning and nature of competence and ability across different activities and contexts, are less familiar with evaluative standards, and have less reason to acquire strategies for assessing their competence. It seems likely that even young children, however, have at least some relevant experience. Parents demand competence in different domains and respond to children's mastery attempts with various kinds of feedback (Kelley, Brownell, & Campbell, 2000); children are also often very frank about their younger siblings' competence, or lack thereof. In addition, many of the common activities of early childhood, at school and at home, from inserting shapes into holes to puzzles and coloring, do provide clear and concrete performance standards. Children also often engage in such activities alongside others. In this case, if they are less limited to their own perspective than early analyses assumed, it is unlikely that they fail to attend to differences between their own and others' performance.

Some studies have indeed indicated that 3- to 4-year-olds already behaved "as if" they attended to discrepancies between their own performance and task requirements or another's outcome, and displayed negative affect after performing poorly relative to one or the other standard (Schneider, 1984; Stipek, Recchia, & McClintic, 1992). Stipek and her colleagues also concluded that they had some sense of the valence of their outcomes for others, anticipating that adults

would respond positively to their success, and attempting to avoid negative reactions to failure by avoiding eye contact. In other studies, children at age 4–5 inserted themselves appropriately into hierarchies of relative standing in meaningful and familiar domains, such as running speed (Morris & Nemcek, 1982) or social dominance (Strayer, Chapeskie, & Strayer, 1979), made spontaneous social comparison statements in classroom settings (Mosatche & Bragonier, 1981), and used information appropriately to make judgments about another child (Ruble et al., 1992; Stipek, 1984). Finally, Marsh, Ellis, and Craven (2002) recently reported evidence indicating the existence of a multidimensional self-concept already among 4-year-olds. Thus, in contrast with earlier findings (Harter & Pike, 1984), they found that perceptions of physical, verbal, and number competence, of physical appearance, and of relations with peers and parents loaded on distinct and fairly reliable factors.

To summarize, there are grounds for venturing that the cognitive capacities and typical experiences of young children suffice to enable the acquisition of at least some self-evaluative knowledge and skills. In this case, their rather consistent failure to use one or another kind of information to assess their competence in controlled studies merits further examination.

Contexts for Studying the Development of Competence Assessment

Many studies of young children's judgments can be faulted, as could many of Piaget's tasks, for requiring children to make rather complex judgments for rather meaningless activities (see also Butler, 1998; Dweck, 1999). In the interests of experimental control, many researchers deliberately used unfamiliar tasks with ambiguous outcomes, such that children could not compare outcomes directly but had to rely instead on complex, symbolic information, such as rates of success represented by numerical scores (Ruble et al., 1980; Ruble, Eisenberg, & Higgins, 1994). Such designs also differ from natural settings, in which children typically see for themselves how they are doing relative to the task or to someone else. Some studies also presented children with multiple standards, such as the outcomes of several peers, or their own rates of success on several trials (Butler & Ruzany, 1993; Ruble et al., 1992; Stipek & Hoffman, 1980). In contrast, research on young children's thought implies that if one is interested in the emergence of the understanding that a particular standard is relevant for evaluating competence and of the capacity to use it appropriately, one should use simple, rather than complex, evaluative tasks and standards.

Analyzing different kinds of self-evaluative comparisons in terms of the specific knowledge and strategies they require can provide a framework for analyzing their relative complexity, and for predicting whether the capacity to use them for self-appraisal should develop concurrently or at different points (Case, 1985). For example, in the simplest two-instance case, self-evaluative social comparison involves a comparison between two concrete outcomes (for self and other), a task that seems formally equivalent to comparing an outcome (e.g., one's attempt to solve a puzzle) with an objective standard (e.g., the picture on the box). Thus, one might expect both to emerge at about the same time. In contrast, temporal comparison typically involves a more complex comparison between a concrete outcome (current performance) and a mental representation (past performance). In this case, young children may actually be quite proficient in using simple objective and social, but not necessarily temporal, self-evaluative standards in their daily lives, and thus also in appropriate controlled settings.

I tested this reasoning in two studies (Butler, 1998) in which children between the ages of 4 and 8 evaluated their performance on a familiar activity (tracing a winding path between a child and a house) in the presence of a simple, concrete social standard (the work of one other child who had traced either more or less of the path) or temporal standard (their performance on a prior trial in which they had completed either less or more of the path). Results confirmed that given a simple, two-instance comparison and concrete outcome information, children at age 4–5 evaluated their performance more positively when they completed more, compared with less, of the path than the other child. Indeed, the discrepancy between self-appraisals in success and failure conditions was no smaller than at age 7–8. The youngest and oldest children also used similar self-evaluative strategies. Most explained their ratings by comparing their performance appropriately with either the objective standard ("I only got halfway to the house") or the social standard ("I did more–less than him"). Moreover, about 40% of both the youngest and the oldest children explained their ratings in terms of explicit and appropriate social comparison.

In contrast, children in the youngest group did not rate their current performance differently when they performed better, rather than worse, than on a previous trial, and children did not explain their ratings in terms of temporal comparison before age 7–8, even when they were shown both their outcomes. The youngest children did not, however, evaluate themselves more favorably than did the oldest ones, even in temporal comparison conditions. Instead, they attended to the concrete standard that was accessible to them—how much of the path they had completed—and rated their performance higher when they completed more, rather than less, of the path. Thus, to summarize, already by age 4–5, children were capable of veridical self-appraisal as long as the information available to them was meaningful, accessible, and easy to process. The findings for social comparison accord well with the evidence reviewed earlier regarding early social comparison activity and interest, and suggest that the failure of young children to use social comparison appropriately in prior studies was indeed influenced by methodological factors. Analyzing evaluative standards in terms of their complexity can also explain why Ruble and her colleagues also found that young children did not use temporal comparison information for self-appraisal (Ruble et al., 1992, 1994).

Research on early cognitive development has also alerted us to the possibility that children sometimes fail to understand the question, or the researcher's intentions, rather than the concept. Findings that appropriate use of information emerged later, when children were asked to evaluate their ability, than when they were asked to evaluate their performance have been attributed to their limited understanding of traits (Ruble et al., 1992). Young children do, however, seem to form general perceptions of their competence. They also display more sophisticated reasoning about traits than we used to think (Ruble & Dweck, 1995). Moreover, given that ability is best evaluated by integrating information over different times and situations, one can ask how people at any age do so on the basis of their performance on one, or even several, experimental trials. Thus, another possibility is that young children tend to interpret questions about their ability literally, to believe that the experimenter really is interested in how good they are at solving puzzles or tracing paths, and to respond, rather appropriately from this point of view, in terms of their general experience in similar domains. In contrast, older children may be more likely to understand that the experimenter is really asking about their ability to use relevant information.

One way to examine this possibility is to ask children to explain their ratings. In one relevant study, children rated their ability at finding hidden chickens after they saw how many chickens they and two peers had found in a hidden figures task (Butler & Ruzany, 1993). Several young children in kibbutzim, which are agricultural communities, justified their high ratings by explaining that "I always find lots of chickens in the incubator"; other young children referred to their experience with similar puzzles. In contrast, most of the older children referred to the social comparison standards provided. School experience may well play a role here, as seems to be the case for strategies such as verbal rehearsal. Thus, school tasks are not only structured but are also structured in ways that scaffold understanding that school problems differ from those of daily life, and should be solved using only the information provided.

Evidence that young children can use self-evaluative standards appropriately does not necessarily imply that they are always motivated either to evaluate their competence or to do so accurately. Moreover, analyses that emphasize the acquisition and application of self-evaluative knowledge and strategies in context do not, as yet, resolve the puzzle addressed by Stipek (1984). Thus, we still need to explain why, when young children do not evaluate themselves accurately, they over- rather than underestimate their capacities. I address these issues in the next section.

DEVELOPMENTAL INFLUENCES ON SELF-EVALUATIVE MOTIVES

Are Young Children Motivated to Evaluate Their Competence?

There are grounds for venturing that self-evaluative motivation increases with age (Ruble, 1983), at least in part because preschools of the kind described earlier are less likely than typical elementary schools to convey that levels of relative competence are important. Thus, young children may be motivated mainly to seek and attend to information relevant to acquiring competence, and interest in evaluating competence should increase during middle childhood (Butler, 1989b). Ruble and Frey (1991) reached a similar conclusion on the basis of their analysis of the implications of stages of skill acquisition for self-evaluative strategies. They reasoned that young children tend to be at early stages of skill acquisition, when it is most functional to seek information relevant to clarifying task requirements and acquiring initial proficiency. With age, however, children are more likely to be at later stages of skill acquisition, when it is appropriate to seek information relevant also to evaluating their competence.

In a series of studies, we examined motives for attending to peers' work during arts-and-crafts activities. Results from the first of these studies indicated that children's interest in peers' work, as reflected in the frequency with which they looked at others' work, did not change between ages 4 and 10, but their explanations for doing so changed dramatically (Butler, 1989b). Before grade 1, almost all children explained their glances in terms of strivings to learn from others, and said, for example, "My flower came out funny so I wanted to see how he did his" or "I couldn't get the ground right." Thereafter, increasing numbers of children explained their glances in terms of strivings for self-evaluation, and by age 10, over 80% explained that "I wanted to see if my design was good" or "I wanted to see who made the best flower."

Subsequent studies were designed to clarify the roles of context, concept acquisition, and stages of skill acquisition by comparing motives for looking at peers' work among 4- to 10-year-old urban and kibbutz children at different levels of acquisition of the normative concept of ability (Butler & Ruzany, 1993) and during earlier versus later stages of task engagement (Butler, 1996). Urban preschools differed from elementary schools, as described by Baumer (1998). In keeping with the collectivist kibbutz ideology, kibbutz schools were, however, characterized throughout by an explicit commitment to cooperative and child-centered learning for mastery, and teachers refrained from normative evaluation also in elementary school. As expected, the results for urban children replicated those of the first study, and the shift from mastery to self-appraisal motives was associated with both the transition to elementary school and acquisition of the normative concept of ability. In contrast, most kibbutz children cited mastery reasons for attending to peers' work in both preschool and elementary school, and both before and after acquisition of the normative concept of ability. In both environments, however, children were more likely to cite learning reasons during early stages of task engagement, and self-appraisal reasons at later stages (Butler, 1996).

These findings confirm the extent to which not only self-evaluative knowledge and competence but also motivation to evaluate the self are constructed in context, and suggest that in typical Western environments, this does indeed increase with age-related changes in the school environment. No studies have examined the further implication that children who attend more academic preschools will display earlier interest in evaluating, and not just in acquiring, competence. Experimental studies have, however, confirmed that even 5-year-olds understood that it was more appropriate to evaluate their work relative to social, rather than objective, standards when told that they were participating in a competition to see who did the best work (Butler, 1990). They were also more likely to explain their glances in terms of self-appraisal in a competitive than in a noncompetitive condition (Butler, 1996).

In all events, even if young children typically use the informational environment mainly to acquire competence, we have seen that they also evaluate their competence in both controlled and natural settings. Indeed, explaining that one looked at someone else's work because "My flower came out funny and I wanted to see how he did his" also implies some appreciation of deficiencies in one's own work. I now turn to the second question: Do positive biases decrease between early and middle childhood?

Motivation for Accurate versus Positive Self-Evaluation

Analyses of early self-appraisal have not always considered the fact that adults also tend to overestimate their abilities and performance. Moreover, Taylor and Brown (1988) concluded that self-enhancing biases are associated with a pattern of positive adjustment and high self-esteem, reminiscent of the confident and resilient young child described in earlier sections. Overoptimistic appraisals may, however, also impair effective coping by limiting possibilities of monitoring, evaluating, and improving outcomes and capacities, of identifying and overcoming deficiencies, and of setting and working toward attainable goals. Thus, much recent research on self-evaluative strategies and judgments has been guided by the assumption that these reflect conflicting strivings for positive and veridical self-appraisal, and by attempts to identify when one or the other is more salient (Butler, 2000; Frey & Ruble, 1985), or when people are more or less likely to constrain positive biases (Sedikides, Herbst, Hardin, & Dardis, 2002).

In brief, the more important it is for people to view and present themselves in a positive light, the more likely are they to do so. Positive biases in adults increase as a function of the personal, contextual, or cultural importance of the attribute evaluated (Sedikides, Gaertner, & Toguchi, 2003). Self-presentation concerns may, however, also constrain positive biases, because people on occasion pay a price for presenting themselves as superior to others, or as self-aggrandizing and immodest self-appraisers (Brickman & Bulman, 1977). Self-serving biases also decrease as a function of the importance of veridical self-appraisal. For example, I have proposed that they are enhanced by performance goals and constrained by learning goals (Butler, 1993, 2000). I reasoned that people who strive to demonstrate superior ability or avoid the demonstration of inferior ability should be interested mainly in information that reflects favorably on their ability. In contrast, veridical self-appraisal is more adaptive when people strive to learn and acquire competence, because one cannot know whether there is room for improvement without some sense of one's current proficiency. Positive biases are also constrained when people have more, rather then less, relevant knowledge and expertise (Kruger & Dunning, 1999), and when their cognitive resources are more, rather than less, adequate for processing available information (Trope & Neter, 1993).

Integrating this, albeit schematic, review with the foregoing analysis of the development of self-evaluative competence and motivation suggests the existence of two conflicting, age-related trends. On the one hand, motivation to evaluate the self favorably may actually increase rather than decline with age, in keeping with increases in the pursuit of personal performance goals and in contextual emphases on the importance of demonstrating superior ability. On the other hand, constraints on positive biases should also increase as children acquire more domain-specific knowledge, greater capacity to process complex information, and greater social understanding of the costs of inflated self-appraisal.

This analysis can account for unexpected findings from two studies in which, instead of decreasing steadily with age, self-appraisals were most positive at age 5–6, and were less favorable not only at ages 7–9 but also at age 4–5 (Butler, 1990; 1998). Similarity between appraisals after success and failure, which is usually interpreted as evidence of motivated bias, was also greatest at age 5–6, mainly because self-appraisal in failure conditions were particularly positive in this age group. Moreover, although, as described earlier, both the youngest and the oldest children tended to evaluate themselves appropriately relative to simple and accessible standards, the evaluative strategies of 5- to 6-year-olds were quite self-serving. Thus, they were more likely to explain their ratings in terms of social comparison when they performed better, rather than worse, than another child (Butler, 1998).

The differences between children in K1 and grade 3 cannot be interpreted solely in terms of age-related decreases in wishful thinking and advances in operational thought, because the appraisals and expla-

nations of preschool children were less self-serving. Rather, I offered the tentative explanation that the K1 children, who were about to enter elementary school, were both more motivated than the younger children to present themselves as highly competent and less capable than the older children of constraining positive biases (Butler, 1998). A recent study (Kinsborn, 2002) provided a more direct test of this analysis. We examined self-evaluative judgments when children in preschool, K1, grade 1, and grades 3–4 saw either that their performance on the tracing task described earlier was both better than that of another child and worse than that on a prior trial, or that they had performed worse than the other child but better than before. For this more complex, multistandard, evaluative task, 4- to 5-year-olds were more likely than in the earlier study (Butler, 1998) to base their appraisals on comparison with the objective rather than the social standard, but in both cases, they evaluated their performance realistically. In contrast, self-enhancing biases were marked both in K1 and in grade 1. In K1, these took the form of selective, self-enhancing comparisons with the less demanding social comparison standard. In grade 1, when children were able to attend also to the temporal information, they attended selectively to the standard that reflected more favorably on their performance. Only at age 9–10 did most children again evaluate their performance appropriately, usually by integrating information from more than one of the available objective, temporal, and social standards.

Another factor that may have constrained self-serving biases in the older children, as in adults, is their increasing awareness of the social costs of self-aggrandizing appraisals. Indeed, in two interesting studies of social comparison behaviors in K1 through grade 5 classrooms, overt, self-enhancing social comparisons were most frequent in K1 and grade 1, but more subtle comparisons, such as inquiries about peer progress, increased during middle childhood (Frey & Ruble, 1985; Pomerantz, Ruble, Frey, & Greulich, 1995). Older children were also more likely than younger children to express disapproval of public declarations of superior competence.

Further research is necessary to confirm whether children initially tend to be veridical rather than self-enhancing self-evaluators. This proposal differs markedly from most prior analyses, but many of these were based on findings from studies in which the youngest participants were already in kindergarten. In one exception, Stipek and Hoffman (1980) found that 3- to 4-year-olds were more likely than were 5- to 6-year-olds to make more favorable judgments after failure for the self than for another child. In another study, however, 4-year-old children's expectations for the self were modified by relevant information except when an anticipated reward was made contingent on success (Stipek, Roberts, & Sanborn, 1984). Thus, positive bias increased among young children, as among older children and adults, with the incentive value of success. In a similar vein, 4-year-olds in another study evaluated their work appropriately (and less favorably than did 7-year-olds) when they were instructed to copy a drawing of a flower as exactly as they could, but overestimated their performance when they were told that they were participating in a competition to see who could make the best copy (Butler, 1990). They also adopted different self-evaluative strategies in the two conditions. Thus, they explained their ratings in terms of appropriate comparisons with the original drawing in the "match-the-standard" condition, but in terms of self-serving comparisons with peers' work in the competitive condition. For example, a child in the former condition explained that his copy was not very good, because he had done too many petals, but a child in the competitive condition, who had also drawn too many petals, explained that his work was excellent, because he had drawn more petals than his friend! In this case, one can venture that if young children are indeed less prone to motivated, self-enhancing biases than are older ones, this, too, may have something to do with their typical schools, which are less likely than are elementary schools to emphasize competitive success.

Analysis in terms of increasing motivation to evaluate the self favorably alongside increasing capacity to constrain positive biases can also provide a perspective for understanding why studies tend to find that average levels of perceived competence in various academic domains were similar and high before about age 8 and declined steadily thereafter (Marsh, Craven, & Debus, 1998; Wigfield et al., 1997). As noted earlier, evaluating one's competence in one or another domain is a complex endeavor that requires systematic consideration and integration of outcomes across time and situations. Even though young children seem more capable than we once thought of forming general perceptions of their cognitive competence, they also find it difficult to integrate multiple sources of information. Thus, one would expect their perceptions to be based on a rather unsystematic sampling of relevant events and information, in keeping with their relatively limited, domain-specific experience and information-processing capacities (see also Marsh et al., 1998). These constraints can also account for their rather positive perceptions, because, as described earlier, young children typically have little reason to feel incompetent, and are rarely required to put their positive appraisals and expectations to the test. Although this changes, at least for the less able, with the transition to elementary school, so should all children's appreciation of the importance of success and their motivation to evaluate themselves favorably. Thus, even though sampling may become more systematic, motivated biases should initially maintain perceived competence at rather high levels, in real life as in controlled studies. Finally, declines after the early elementary school grades are consistent with the notion of continuous, rather than qualitative, increments in children's domain-specific experience, proficiency in integrating relevant information from different sources, awareness of the costs of self-aggrandizement, and, thus, in the capacity to constrain motivated biases.

In this context, it is important to note that theory and research with older children and adults has examined not only how people integrate experiences and information to form general perceptions of their competencies and abilities, but also how individual differences in these general perceptions influence self-evaluative strategies, inferences, and consequences. Thus, for example, high self-esteem is associated with positive self-evaluative biases, and with more resilient responses in the event of failure and adversity (Taylor & Brown, 1988). As long as researchers assumed that young children uniformly overestimate their abilities and do not have a sense of global self-worth, they had little reason to consider the possibility or role of early individual differences in self-esteem. There may, however, be grounds for reconsidering this assumption as well.

Research on affective development has documented early individual differences in the degree to which children behave "as if" they have higher or lower levels of self-worth or confidence, respond to novel events with enthusiasm or fear and react to difficulty with persistence or shame (Lewis, 1998). In the most comprehensive research program to date, Dweck and her associates (e.g., Cain & Dweck, 1995; Dweck,1999; Smiley & Dweck, 1994) have documented individual differences by age 4 in children's preferences to repeat a task on which they had attained only partial success versus one that they had previously completed successfully. Moreover, in contrast with prior findings of uniformly high expectations and continuing behavioral persistence after failure, this was the case for children who preferred the challenging task, but not for those who preferred the easy one. The latter, but not the former, also displayed negative affect, self-blame, and impaired strategies. Thus, some quite young children displayed the helpless responses to challenge and failure that were once thought to emerge only in middle childhood.

Dweck (1999) has attributed this pattern to the early development of a sense of contingent self-worth, which in her view is rooted in the belief that outcomes reflect on one's worth and goodness rather than one's competence or ability. In support, she cited findings that helpless responses were not related to children's actual or perceived competence for the target activity, but when children role-played situations in which they erred on a task, 53% of the "helpless" children agreed they would feel that they were not good children. However, a higher and striking 62% made competence-related inferences and said that they would feel they were not good at the task or not smart (Heyman, Dweck, & Cain, 1992). Thus, one cannot discount the possibility that young children's early "idea of me" (Lewis, 1991) incorporates representations of the self not only as more or less worthy but also as more

or less competent or efficacious. If so, one can also venture that individual differences in such representations may moderate achievement-related judgments and behaviors much earlier than previously thought.

CONCLUSIONS AND IMPLICATIONS FOR PROMOTING ADAPTIVE SELF-ASSESSMENT, SELF-REGULATION, AND MOTIVATION

To summarize, there are theoretical and empirical grounds for making several general claims about young children's self-evaluative knowledge, competence, and motivation, and how these evolve during early and middle childhood. First, early (and some later) descriptions of young children as consistently inaccurate and incompetent self-evaluators are themselves inaccurate. Already during their third year, if not before, children display differential affect and behavior in the event of more versus less successful mastery attempts, and seem to anticipate differential evaluative responses from adults. Certainly by age 4, and possibly even earlier, questions of competence are meaningful and play a role in regulating activity. Quite young children display practical understanding of the diagnosticity of various informational standards and strategies, including social comparison, and use them appropriately to evaluate their competence in controlled settings. They also form quite reliable perceptions of their competence in everyday domains. They do, however, have difficulty with some kinds of standards, such as information about prior outcomes, and cannot integrate information from multiple sources or standards. However, there is some evidence that even in such cases, they tend to evaluate themselves rather appropriately relative to that information that is accessible to them.

Second, there seems to be considerable similarity in the factors that influence younger and older children's competence-related strategies, inferences and behaviors, and, thus, in the ways in which they evaluate or misevaluate themselves. Thus, appraisals of specific outcomes and self-evaluative strategies seem to be influenced in rather similar ways by relevant experience and the complexity of relevant information. Moreover, the level of complexity that is "too difficult" seems to change incrementally, rather than dramatically, between early and middle childhood. In a similar vein, there are grounds for attributing increasing differentiation in the self-concept to increasing experience with different domains, including school subjects, more than to qualitative differences in differentiation per se. Most generally, examination of the self-evaluative capacities and limitations of younger children, and comparisons with those of older children, serve to challenge "structural deficit" analyses of the development of competence-related judgments and concepts. Rather, I have suggested that this is better explained by parallel analyses of the typical contexts of early and middle childhood, on the one hand, and of the complexity of various self-evaluative tasks and challenges, on the other. Thus, in competence assessment, as in other domains, children seem to acquire and apply those skills, strategies, and concepts that are functional to and scaffolded by their everyday experience and commensurate with their current knowledge and processing capacities.

Third, there do seem to be age-related differences in children's motivation to evaluate themselves. Younger children seem to be more oriented to acquiring than evaluating competence, and motivation to evaluate competence does seem to increase between early and middle childhood, as other researchers have suggested (Ruble, 1983; Ruble & Frey, 1991). However, older children behaved much like younger ones in experimental and natural contexts that emphasized learning and competence acquisition, and there is some evidence that younger children behaved much like older ones in contexts that emphasized the importance of relative achievement. Thus, from an early age, children also learn what kinds of competence are important, how each is best evaluated, when it is important to demonstrate superior ability, and what price one might pay for doing so. In this context, I have ventured that younger children may actually be less inclined to motivated, self-enhancing biases than prior analyses have suggested, and have cited evidence consistent with the notion that both motivation to overestimate one's capacities and constraints on positive biases increase after early childhood.

These conclusions cast doubt on prior claims that there are clear age-related transformations in achievement-related behaviors and motivation. First, this review is consistent with other challenges to descriptions of young children as necessarily optimistic and confident about their capacities, even when they encounter difficulty (Dweck, 1999). The research program of Dweck and her associates has confirmed that at least some young children respond negatively to difficulty and challenge, and do so in ways that do not seem to change much with age. Moreover, if quite young children can attend to relevant information to evaluate their outcomes, anticipate the evaluative responses of others, and form general perceptions of their competence in familiar domains, one might also wonder whether, as a group, they are as invulnerable to failure as early analyses assumed. As noted earlier, there is very little relevant empirical evidence, possibly because, until recently, there seemed to be little reason to anticipate nonresilient responses. But even 4- to 5-year-olds displayed less intrinsic motivation for an activity after they performed worse, as compared with better, than another (Butler, 1998). Further research might examine the additional possibility that decrements in confidence and interest will be even more marked when young children experience recurring failures in one or other domain in their daily lives.

Second, this review has implications for the development of children's achievement motivation. Interestingly, the effects of age, context, and individual differences on children's self-evaluative motivations and responses to challenge reviewed in this chapter are similar to those associated with approach versus avoidance motivational orientations (Elliot & Thrash, 2002) or task versus ego-involving settings (Butler, 1993) among adults. On the one hand, analysis of the typical contexts of early versus middle childhood and findings from many empirical studies are consistent with proposals that young children typically pursue task, or learning, goals in achievement settings (Nicholls & Miller, 1984). On the other hand, I have cited evidence that even quite young children were sensitive to contextual cues regarding the importance of different kinds of success or competence. In this case, one can ask whether their motivational strivings change as dramatically with age as some researchers have suggested. Put another way, are young children "developmentally constrained" to pursue task goals, or can they also be guided by strivings to demonstrate superior, or disguise inferior, performance or ability?

Few studies have examined the effects of different goal cues on young children's motivation and behavior, possibly because researchers tended to believe that young children are incapable of pursuing performance, or ego, goals. Consistent with this belief, competitive conditions, which present a strong performance–goal manipulation, did not undermine children's intrinsic motivation before about age 9–10 (Butler, 1989a, 1990). They did, however, undermine performance on a creative task (Butler, 1989b), motivation to learn from others (Butler, 1996) and veridical self-appraisal (Butler, 1990) among 4- to 5-year-olds, as among older children and adults. Thus, young children sometimes behaved as if they were guided by performance goals, and did so, moreover, in contexts that evoke such goals at later ages. In this case, a cautious working hypothesis that could be examined in future research is that consistent exposure to such conditions at home or at school might well create a more general orientation to pursue performance, rather than learning, goals, even in the preschool years.

Before I address some applied implications of this review, it is important to note some issues it did not address. Most significantly, in view of my emphasis on experience in context, in this review I discussed educational contexts at length but barely touched on those of the home and family. My emphasis on general processes, strategies, and concerns, and, thus, on "children in general" is also problematic in view of the role of factors such as class, ethnicity, and culture in shaping children's constructions of themselves and the world, at home, at school, and in the transition between them. In a similar vein, I did not address possible gender influences in the development of self-relevant judgments and achievement motivation and behavior.

Despite these limitations, one clear applied implication of this review is that parents and teachers should be aware that

young children may display at least some of the maladaptive responses to challenge, difficulty, and contextual emphases on relative ability that have been documented at later ages. The present emphasis on the construction of self-evaluative knowledge and achievement motivation in context also suggests some more specific guides as to behaviors and contexts that are likely to promote more or less constructive responses. Providing children with supportive and informative feedback about task requirements and effective strategies in settings that emphasize the value of acquiring knowledge and understanding of the world and the self should maintain and promote tendencies to evaluate the self appropriately, and to use self-knowledge constructively to promote competence acquisition. It is questionable whether the kinds of preschool environments described by Baumer (1998) provide such scaffolds, but at least they do not seem to undermine children's sense of competence. In contrast, parents and teachers who dismiss or criticize children's mastery attempts, set unreasonable standards, or compare them with more successful siblings, neighbors, and classmates should convey both that it is more important to succeed than to learn, and that the child is incompetent and unworthy (see also Dweck, 1999; Kelley et al., 2000). Adults who respond in these ways should also be less likely to provide environments in which children can correct negative self-conceptions and behaviors, and derive satisfaction from acquiring competence.

With the transition to elementary school, children are more likely to encounter critical evaluations, tasks that they find difficult, and cues that convey the importance of demonstrating superior ability. In this case, it is not surprising that the frequency of helpless responses and the level of performance goal orientation increases during middle childhood. However, there is converging evidence that supportive settings and constructive feedback of the kinds described earlier are effective in promoting constructive self-evaluation and adaptive self-regulation, and achievement strivings at all ages (Ames, 1992; Butler, 2000).

To summarize, the evolvement of children's self-evaluative competencies, strategies, and motivations, described here and by some other researchers (Dweck, 1999; Ruble & Frey, 1991), presents a rather different picture of young children's strengths and vulnerabilities than that depicted in many earlier analyses. On the one hand, young children seem to be more competent than we once thought in evaluating their outcomes and capacities, and should, thus, also be less limited in using self-knowledge and the informational environment to monitor and regulate activity, to set goals, and to acquire strategies for attaining them. On the other hand, these very competencies may also render them more vulnerable than we once thought to developing maladaptive patterns of self-doubt and helplessness, and the belief that it is more important to succeed, or avoid failure, than it is to learn and acquire competence.

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CHAPTER 13

Competence, Motivation, and Identity Development during Adolescence

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Adolescents experience many important changes in their lives and circumstances that impact the development of their competence and motivation. These include the biological changes associated with puberty, changes in relations with family and peers, increasing concern about their identities and roles, and the social and educational changes resulting from school transitions (see Eccles & Wigfield, 1997; Midgley & Edelin, 1998; Wigfield & Eccles, 2002). Adolescents also face many crucial decisions that can affect them over the course of their lives, such as decisions about their education, possible occupations, which social relationships to pursue, and whether or not to engage in a variety of risky behaviors. Many adolescents cope well with these changes and decisions, and make choices that lead to positive developmental outcomes for them in a variety of areas. Others, however, have difficulty with one or another of these changes and choices, and as a result are at risk for various negative outcomes.

What is the role of competence beliefs and motivation during adolescence? Motivation theorists posit that individuals' competence beliefs, values, goals, and other motivational variables relate to their performance on different activities, effort exerted in them, and choices of which activities to pursue, and which to avoid (Eccles, Wigfield, & Schiefele, 1998; Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, in press). Adolescents with strong beliefs in their competence, and positive achievement values and goals, thus should perform more capably, be more likely to exert the effort needed to accomplish different activities, and make appropriate decisions about activities to do, as well as other, more complex choices. Thus, healthy competence beliefs and motivation are central to healthy development during adolescence.

We focus in this chapter on change during adolescence in children's beliefs about their competencies and motivation, with a primary focus on competence and motivation in academic settings. We also discuss the development of broader self-representation processes, with a special focus on identity formation. We discuss identity development,

because adolescence is the time in which identities begin to take shape, and adolescents' identity development has important implications for the development of their competence and motivation, and for the kinds of decisions they make about what to do with their lives. We begin with a brief overview of the major changes adolescents experience to provide a context for our discussion of the development of adolescents' perceived competencies, motivation, and identity. Our focus primarily is on the experiences of American adolescents; the developmental course of adolescents' competence and motivation in other cultures may be quite different.

CHANGES DURING ADOLESCENCE

Puberty

The biological changes associated with puberty are among the most dramatic ones that individuals experience during their lifetimes. In part because of these dramatic biological changes, historically, different theorists portrayed the early adolescent period as a period of "storm and stress," where there is a great deal of conflict between children, parents, and teachers (e.g., Blos, 1979; Hall, 1904). Such views often are presented in the media, and in other forums as well, leading many to believe that adolescence is necessarily a turbulent time (see Buchanan, 2002). While it is undeniable that major physical changes occur during early adolescence, many researchers now believe that the characterization of this time period as one of storm and stress is an overstatement (see, e.g., Arnett, 1999; Dornbusch, Petersen, & Hetherington, 1991). However, the biological changes adolescents go through do have many influences on their thinking and behavior, posing challenges for many adolescents (Arnett, 1999).

Cognitive Changes

Children's thinking also changes during the adolescent years (e.g., see Byrnes, 1988; Keating, 1990; Moshman, 2004). For our purposes, the most important changes are the increasing propensity to think abstractly, to consider the hypothetical, as well as the real, to engage in more sophisticated and elaborate information-processing strategies, to consider multiple dimensions of a problem at once, and to reflect on oneself and on complicated problems (see Keating, 1990, and Moshman, 2004, for more complete discussion). Such changes have potentially important influences on children's learning. They also have implications for individuals' motivation, competence beliefs, and identities. Theorists such as Erikson (1968) and Harter (1990) view the adolescent years as a time of change in children's self-beliefs, as young people consider what possibilities are available to them and try to come to a deeper understanding of themselves. These sorts of self-reflections require the kinds of higher order cognitive processes just discussed.

Along with these changes in cognitive processes, children's skills increase in many ways as they move from childhood into adolescence. Through schooling and participation in sports and other activities, adolescents gain a variety of increasingly sophisticated skills. Of course, there are great individual differences in the extent to which these skills are acquired, but all adolescents' skills do grow. Similarly, adolescents also learn to control and regulate their behavior, so that they can manage their daily routines more efficiently and independently (see Pintrich, 2003; Zimmerman, 2000). Again, some adolescents develop these regulatory skills more completely than do others, but most adolescents do develop them. These changes also have implications for adolescents' developing perceptions of their competence, motivation, and sense of themselves. Adolescents who can regulate their behavior efficiently likely develop a stronger sense of competence in different areas, as well as motivation to participate in these activities.

Changes in Social Relations

Children's social relations change in important ways as they go through adolescence (see Rubin, Bukowski, & Parker, 1998). We only have space here to make several general points about these changes. Parents obviously continue to have a strong influence on their adolescents' development, and many parents remain very involved in their adolescents' lives. They continue to provide oppor-

tunities for their children to develop their competencies, and feedback that influences adolescents' sense of competence and motivation (see Eccles et al., 1998; Jacobs & Eccles, 2000). But compared to earlier developmental periods, parental influences likely wane, at least in comparison to the influence of peers, for various reasons. One clear example of this is that parents' involvement in their children's schooling often declines during adolescence (see Epstein & Connors, 1995). Also, parents and adolescents often experience more conflict in their relations as adolescents assert their independence and spend more time away from home. Peer relations take on more importance in adolescence, both in terms of the amount of time adolescents spend with peers and the influence they have on one another (see Berndt & Keefe, 1995). In general, children and adolescents who are accepted by their peers and 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 outcomes, including competence and motivational outcomes (e.g., Parker & Asher, 1987).

Although peer influence often is portrayed in negative terms, research indicates that peers often gravitate to similar others, and strengthen each others' motivational orientations and achievement patterns (Berndt & Keefe, 1995; Kindermann, 1993; Kindermann, McCollam, & Gibson, 1996). Whether such effects are positive or negative depends on the nature of the peer groups' motivational orientations. High-achieving children who have other high achievers as friends can develop even more positive academic motivation over time. In contrast, low achievers who join a low-achieving peer group can become even less motivated to do school work and instead become motivated to engage in other activities valued by this peer group. Some of these activities may enhance adolescents' competence, and some may not (see Kindermann, 1993; Kindermann et al., 1996).

School Transitions

Most adolescents go through two school transitions, one from elementary to middle school, and one from middle to high school. The environments in these settings are quite different from one another, so students have to adjust to them in many ways. These transitions, particularly the middle school transition, have a strong impact on many students' competence beliefs and motivation, and this impact often is negative (see Anderman & Maehr, 1994; Eccles & Wigfield, 1997; Wigfield & Eccles, 2002). Students must cope with disruptions to their social networks, larger and more impersonal school bureaucracies, relations with teachers that often are less personal, and more extensive tracking and ability grouping, among other things. These changes can substantially influence adolescents' competence, identities, and motivation; we now turn to how these develop.

CHANGES IN ADOLESCENTS' ACHIEVEMENT MOTIVATION

Work on the development of motivation and achievement-related beliefs, values, and goals has flourished in the last 30 years (see Eccles et al., 1998; Pintrich & Schunk, 2002; Wigfield et al., in press). Eccles et al. (1998) categorized these belief, values, and goal constructs in terms of questions students can ask themselves that have implications for their motivation. One question is "Can I succeed on this task or activity?" Constructs related to this question include students' competence-related beliefs and self-efficacy (Bandura, 1997), their attributions for success and failure (Weiner, 1985), and their perceptions of control over outcomes (Skinner, Zimmer-Gembeck, & Connell, 1998). In general, when students have high self-efficacy, the belief that they can control their achievement outcomes, and internal attributions for their success, they tend to be more positively motivated and perform better on different achievement tasks and activities (see Eccles et al., 1998, for a complete review). The second question—"Why do I want to do this activity?"—has to do with the purposes for which students engage in academic activities. This question is crucial to motivation. Even if individuals believe they can succeed on a task or activity, they may not engage in it if they have no clear purpose for doing so. Constructs related to this question include students' valuing of achievement (Wigfield & Eccles, 2000), goals for achievement

(Ames, 1992; Pintrich, 2000), and intrinsic and extrinsic motivation (Gottfried, Fleming, & Gottfried, 2001; Ryan & Deci, 2000). When students value achievement, have clear goals for achievement, and are intrinsically motivated, they tend to be more engaged in academic activities and perform better.

Researchers have studied how these motivational constructs change across age in different ways. Some researchers have examined whether children's motivation becomes more stable over time, and they find that, indeed, it does. Adolescents' perceptions of competence, valuing of achievement, and intrinsic motivation all become more stable across age and in comparison to elementary school students' competence beliefs, values, and intrinsic motivation (e.g., Eccles et al., 1989; Gottfried et al., 2001; Wigfield et al., 1997). For instance, Gottfried et al. (2001) measured children's intrinsic motivation for verbal and math activities when children were ages 9, 10, 13, 16, and 17. In both domains, children's intrinsic motivation became more stable over time, particularly during the adolescent years, with the stability correlations reaching .86 for intrinsic motivation for verbal activities and .63 for math intrinsic motivation, when students were 16 and 17 years old. Researchers also have examined mean-level change in these constructs; we review the findings from this work next.

Changes in Competence-Related Beliefs

A consistent finding with respect to certain kinds of competence-related beliefs is that they decline during early adolescence and adolescence (for reviews, see Anderman & Maehr, 1994; Eccles et al., 1998). Specifically, early adolescents have lower perceptions of their competence for different school subjects and other activities than do their younger peers (Eccles et al., 1989; Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Marsh, 1989; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991). Jacobs et al. (2002) examined change in children's competence for math, language arts, and sports across grades 1–12. The overall pattern of change was a decline in each domain. There were some differences across domains with respect to when the strongest changes occurred, particularly in language arts and math. In language arts, the strongest declines occurred during elementary school, and little change was observed after that. In sports, the change accelerated during the high school years. The decline in math competence beliefs was steady over time.

This same pattern does not appear to hold for self-efficacy beliefs, likely because of differences in how competence beliefs and self-efficacy are defined and measured. Bandura (1997) defined "self-efficacy" as individuals' beliefs about their *own* capabilities to accomplish a task or activities. Therefore, researchers most often measure self-efficacy by asking individuals how confident they are that they can do a given task (see Pajares, 1996). Because children's skills increase with age, adolescents should be more confident in their ability to do more complex tasks than are younger children, which indeed has been found to be the case (Shell, Colvin, & Bruning, 1995; Zimmerman & Martinez-Pons, 1990). In contrast, researchers measuring perceptions of competence often include questions asking children to compare their ability to that of others, and to assess how good they are at a more general activity, such as math. It is on these latter kinds of measures, when students compare themselves to others and provide broader evaluations of their competence, that the declines are observed.

Competence beliefs also become more accurate in the sense of relating more closely to children's performance (Assor & Connell, 1992). Indeed, competence-related beliefs relate strongly to children's performance on different academic, social, and sport activities, even when previous performance levels on the activities are controlled (for reviews, see Bandura, 1997; Wigfield & Eccles, 2002).

Changes in Adolescents' Perceived Value of Achievement, Intrinsic Motivation, and Goal Orientations

Students' valuing of different school subjects also declines as they move through school, with the declines especially marked across the transition to middle school (Eccles et al., 1989; Wigfield et al., 1991). Jacobs et al. (2002), in the study just described, found that children's valuing of the domains of math, language arts, and sports declined. As was the case for competence beliefs, chil-

dren's valuing of language arts declined most during elementary school and then leveled off. By contrast, children's valuing of math declined most during high school. Researchers also have found decreases in children's intrinsic motivation to learn, in both cross-sectional and longitudinal studies (Gottfried et al., 2001; Harter, 1981). Harter measured intrinsic motivation generally, and Gottfried et al. (2001) measured intrinsic motivation for different subject areas (math, reading, social studies, science), as well as general school intrinsic motivation. Gottfried et al. found declines across ages 9–16 in all these aspects of intrinsic motivation except social studies. These findings point to the importance of measuring motivation constructs in domain-specific ways.

What about students' goals for achievement? Researchers studying children's goals often focus on achievement goal orientations, and have defined and studied several different goal orientations (see Pintrich, 2003). One goal orientation concerns individuals' desire to learn new things and master material; this orientation has been called a "task mastery" or "learning goal orientation" by different researchers (Ames, 1992; Dweck & Leggett, 1988; Maehr & Midgley, 1996; Nicholls, 1984). Another orientation concerns individuals' desires to outperform others and receive favorable evaluations of their performance; this orientation is termed "ego orientation" or "performance goal orientation." The early work on these goal orientations suggested that mastery goal orientations were associated with a variety of positive developmental outcomes, and performance goal orientations, with negative outcomes.

Researchers have explored dual aspects of both the performance and mastery orientations, dividing them into approach and avoidance goals (see Elliot, 1999; Pintrich, 2000). An example of a performance–approach goal is wanting to do better than others, whereas an example of a performance–avoid goal is not wanting to appear stupid. Mastery–avoid goals include working to avoid misunderstanding, or desiring not to be wrong when doing achievement activities. Performance–approach goals relate positively to performance and some aspects of motivation, whereas performance–avoid goals have a number of negative consequences for students. Mastery–avoid goals have a mixture of positive and negative consequences (see Elliot & McGregor, 2001).

There has not been a lot of work on the development of goal orientations during adolescence. Extant work shows that students tend to focus more on performance goals as they get older, at the expense of task mastery goals (see Anderman, Austin, & Johnson, 2002, for review). School reform efforts designed to enhance students' mastery goal orientations have had some benefits for students' motivational outcomes (Anderman, Maehr, & Midgley, 1999).

EXPLAINING CHANGE IN ADOLESCENTS' MOTIVATION

We just discussed how adolescents' intrinsic motivation and perceptions of competence become more stable but also show a decline over time. In certain respects, these findings seem paradoxical, but they actually are not. The stability findings indicate that adolescents high in intrinsic motivation one year are more likely to be (relatively) high in intrinsic motivation the next year than are younger students; younger students' motivation is more variable year to year. But across the entire group of adolescents, intrinsic motivation is going down. The adolescent high in intrinsic motivation one year may still be intrinsically motivated the next year, but perhaps to a lesser extent. So individuals show stability, but the overall group shows a decline.

How has the mean-level decline in motivation been explained? Researchers have explained these changes in two major ways. One explanation focuses on cognitive and other changes within the individual. As children mature cognitively and receive increasing amounts of evaluative feedback, they come to understand more clearly their relative level of performance, and what the evaluative feedback means (for further discussion, see Eccles et al., 1998; Stipek & Mac Iver, 1989; Wigfield et al., in press). During their school years, children and adolescents receive a great deal of evaluative information about their school performance and also about other activities that they do. They become better at processing and understanding this information, and so become more realistic in their assessments, as noted earlier. Children and adolescents also use social comparative information more as they get older, and also understand better the implications of that information. A child might believe she is a very good reader, because she can recognize letters in books. However, when she begins school and sees other children already reading chapter books, she begins to understand that perhaps she is not such a good reader. Social comparison can lead many children to doubt their capabilities. These changes in beliefs about competence can lead to a decrease in students' motivation, especially for students doing less well in school.

The second explanation focuses on ways in which the experiences children have in school can contribute to the decline in students' motivation. As noted earlier, children receive more evaluative information as they go through school, and due to the current climate emphasizing assessment and evaluation of students and teachers, the amount of evaluative information children receive is increasing. When this information focuses children on their ability relative to others, many children find it difficult to maintain a strong sense of their competence, which can deflate their academic motivation. Furthermore, schools also often promote practices that accentuate children's tendency to compare themselves to others, which, once again, can contribute to a decline in many children's sense of competence and, ultimately, their motivation (see Wigfield & Eccles, 2002). Such practices can lead students to focus more on performance goals at the expense of mastery goals (see Anderman et al., 2002).

There has been a great deal written about how such practices (and others) become increasingly likely after students enter junior high or middle school (see Anderman & Maehr, 1994; Eccles & Midgley, 1989; Wigfield & Eccles, 2002). Students' friendship networks can be interrupted when they move to a new school; they may not have any classes with friends from their elementary school. Teachers teach a large number of students and may not get to know their students very well, and likely interact with them almost exclusively around the academic subject they teach. Family involvement in school often declines during the middle school years. All of these things can disrupt early adolescents' social relations, making the school transition more difficult.

Instructional practices change in important ways as well. There often is an increase in the use of between-classroom ability-grouping practices, and more rigorous evaluation and testing increases students' focus on their ability. These practices could contribute to the decline in competence-related beliefs experienced by many students. Such practices also lead students to focus more on performance goals, often at the expense of mastery goals (Anderman et al., 2002). Because of the larger size of the schools, administrators and teachers often feel the need to control students more closely, thus giving students fewer opportunities for choice and autonomy.

Eccles and Midgley (1989) argued that a main reason these kinds of changes in both social relations and instructional practices have a negative impact on students' motivation is that they are developmentally inappropriate for early adolescents. At a time when the children are growing cognitively and emotionally, desiring greater freedom and autonomy, and focusing on social relations, they experience school environments that do not promote these things. Therefore, for many early adolescents, these practices contribute to the negative change in motivation and achievement-related beliefs. Many of these practices continue into high school.

We have focused primarily on how changes in instructional practices influence how adolescents' competence-related beliefs and goal orientations change. With respect to intrinsic motivation and valuing of achievement, the observed decreases may occur because the materials and topics studied during middle and even high school may not hold students' interest. This likely is due in part to the nature of the topics studied, but also to adolescents' growing interests in activities outside of school, especially social activities. Adolescents have a wider range of activities from which to choose, and activities with peers take on increased importance for many adolescents. If adolescents focus too much on social activities, their academic motivation and performance can suffer. Second, some researchers have argued that children's sense of competence partially drives their intrinsic motivation for a given activity, particularly achievement-related activities (see Harter & Connell, 1984; Wigfield, 1994). The results of Jacobs et al.'s (2002) longitudinal study of the development of

children's competence beliefs and valuing of achievement provides support for this view. In this study, changes in children's competence beliefs appeared to drive changes in their valuing of school (a construct related to intrinsic motivation) rather than the reverse, and, as described earlier, both competence beliefs and values declined.

Based in part on concern about the declines in student motivation, there have been a variety of middle school reform efforts designed to change school environments and instructional practices in ways that facilitate rather than debilitate students' motivation. A number of these efforts have been successful, but such reforms are not as widespread as they should be (for reviews, see Mac Iver, Young, & Washburn, 2002; Wigfield & Eccles, 2002). Such reforms are less prevalent at the high school level, but they are beginning to occur (National Research Council, 2004).

In summary, during the early adolescent and adolescent years, children's competence-related beliefs, intrinsic motivation, and goal orientations for achievement change, often in negative ways. These changes occur because of changes in children's understandings and interpretation of their achievement outcomes, and also because of changes in the instructional practices they experience in secondary schools. How individuals' broader self-representations change at adolescence is the topic in the next section.

SELF-CONCEPT AND IDENTITY FORMATION AT ADOLESCENCE

Identity formation is a fundamental process in adolescence. A discussion of competence and motivation in adolescence would be incomplete without consideration of the effects that identity development processes may have on these constructs. Furthermore, in recognition of the complex nature of individuals' identities, gender and ethnicity must be considered. We begin this section with an overview of identity development, continue with an examination of identity in relation to academic competence and motivation, and end with discussions of gender and ethnic identity in relation to academic competence and motivation.

Researchers in self-concept and identity often have not clearly defined the constructs they studied, or have defined them ambiguously (for discussion of definitional problems in this area, see Harter, 1998; Marsh, 1990b). Thus, definitions for the purposes of this chapter are in order. "Self-concept" refers to one's perception of oneself, made up of beliefs about many different aspects of self and evaluations of performance in different areas (Harter, 1990; Shavelson, Hubner, & Stanton, 1976; Wigfield & Karpathian, 1991). "Self-esteem" refers to one's judgment of one's worth or value as a person (Harter, 1990; Wigfield & Karpathian, 1991). "Identity" refers to an overall sense of who one is; it is a broader construct than other self-system components, inclusive of self-concept and self-esteem (Erikson, 1968; Spencer & Markstrom-Adams, 1990).

In his well-known psychosocial theory of the development of the self-system, Erikson (1968) identified adolescence as a period focused on identity formation. Adolescents are characterized as having to negotiate a series of developmental tasks in order to form a coherent identity; particularly relevant to our discussion is the exploration of educational and occupational options and aspirations. The process of identity formation involves an exploration of opportunities and different roles, and a synthesis into a coherent sense of self. If individuals are unable to develop a coherent identity, they may fall into role confusion.

Marcia (1980) extended Erikson's discussion of identity development by postulating four identity statuses. Adolescents who have neither explored alternatives nor made a commitment are said to be in *identity diffusion*. If commitment is made without exploration, the status is *identity foreclosure*. *Identity moratorium* describes adolescents in the midst of exploration, and *identity achievement* describes adolescents who have undergone exploration and developed a coherent identity.

These models of identity formation were all developed for the purpose of universal generalizability; however, attention has recently focused on gender and ethnicity as salient factors that may have important implications for identity development (e.g., Eisenberg, Martin, & Fabes, 1996; Phinney, 1990; Root, 1998). These factors and how they relate to academics are addressed further in later sections.

IDENTITY AND ACADEMIC COMPETENCE AND MOTIVATION

In the context of academic achievement research, identity formation has been conceptualized as the process by which individuals (1) develop a more accurate sense of their relative competencies, (2) come to understand what their values are, and (3) conceive self-esteem as grounded in these valued areas (Eccles et al., 1989). This definition emphasizes the development of academic competence and motivation as an integral part of identity formation. Researchers interested in identity and academics have approached these issues a variety of ways, which include examining relations of academic variables with identity statuses or, more frequently, exploring the development of academic self-concepts.

Identity Status and Academic Outcomes

There is a dearth of research connecting Erikson's and Marcia's identity theories with academic outcome variables, and much is unknown about the academic implications of different identity statuses. Preliminary work in this area has examined the relation between identity status classification and academic achievement in high school and college students (Berzonsky, 1985). These students were interviewed and classified by Marcia's identity statuses, and categorized as overachievers or underachievers based on the difference between predicted grade point average (as indicated by Scholastic Aptitude Test scores) and actual grade point average. It was anticipated that students in identity diffusion would display problem behaviors indicative of maladjustment and underachievement; however, this was not the case. In the high school sample, individuals with identity diffusion showed expected achievement, and in the sample of college freshman, individuals with identity diffusion displayed overachievement. Students who were categorized by identity foreclosure in high school showed overachievement, whereas individuals with identity foreclosure in college displayed underachievement. Generally, these findings suggest that the relations of identity status to competence and motivation are complex, and more research is necessary to elucidate the relationship between identity status and variables such as academic achievement, competence, and motivation.

Self as Student

The development of conceptions of the self as a student is a particular aspect of adolescent identity that has been of interest to educational researchers (Roeser & Lau, 2002). Researchers have attempted to understand and describe various aspects of students' conceptions of themselves academically, the contributions and implications of which we now discuss.

Student identities have been conceptualized as schemas derived from school experiences and academic performance that incite and direct either competent or problematic behaviors in school settings (Roeser & Lau, 2002). According to Roeser and Lau, *positive student identities* characterize adolescents who have histories of positive academic performance and relationships with classmates, positive emotions related to academic goals, high academic efficacy, positive conceptions of themselves as students, and a commitment to learning. *Negative student identities* characterize adolescents who have histories of academic failure and difficulties with peers, negative emotions associated with academic goals, poor academic efficacy, frustration with themselves as students, and diminishing aspirations for educational attainment. Roeser and Lau argue that school environments play an important role in the development of student identities, and certain practices, such as providing challenging and meaningful work, encouraging cooperative learning, and fostering motivation, may foster the development of positive student identities. Roeser and Lau's analysis of positive and negative student identities is intriguing; however, the applicability of these identity descriptors needs to be assessed with groups diverse in gender, ethnicity, and socioeconomic status.

The future-oriented components of the self-system, notably, possible selves, have been emphasized as critical for motivating different behaviors, including achievement behaviors (e.g., Markus, Cross, & Wurf, 1990; Oyserman, Gant, & Ager, 1995; Oyserman & Markus, 1990). These selves develop from past experiences and messages about what to attain and what to avoid. Academic possible selves function to organize

and direct adolescents' behaviors for attaining their educational goals. A task of adolescence is to create balance in possible selves, meaning a construal of both positive selves to be attained and negative selves to be avoided in a specific content domain. This balance may provide motivation and perseverance in attaining the positive self and avoiding the negative self. In a high-poverty sample of African American middle school students, balance in possible selves predicted school persistence and achievement, with an even stronger effect for males than females (Oyserman et al., 1995).

There is some evidence of ethnic group differences in strategies used to attain achievement-related possible selves. In a study of undergraduate students, Oyserman et al. (1995) found that for European American students, the generation of achievement-related strategies was predicted by individualism, the Protestant work ethic, and balance in possible selves, whereas collectivism, low endorsement of individualism, and ethnic identity predicted strategy generation in African American students. Further research is needed to examine the role of possible selves in academic achievement with other ethnic and socioeconomic groups; available research on the relation between ethnic identity and academic outcome is reviewed in the last section of this chapter.

Recent research on academic self-concepts has emphasized the importance of domain-specificity of these beliefs. Marsh and his colleagues (Marsh, 1990a; Marsh, Byrne, & Shavelson, 1988; Marsh, Craven, & Debus, 1998) have argued that researchers studying academic self-concept need to use domain-specific measures rather than a single, general measure of academic self-concept, particularly when they are looking at relations of self-concept and achievement, because these relations often are complex. For instance, verbal and math self-concepts have been found to be nearly uncorrelated, even though reading and math achievement are significantly correlated (Marsh, Smith, & Barnes, 1985; Marsh et al., 1988). Furthermore, verbal achievement relates positively to verbal self-concept but negatively to math self-concept, and math achievement relates positively to math self-concept but negatively to verbal self-concept (Marsh et al., 1988). The implications of these findings are somewhat troubling given gender differences in math and verbal self-concepts, which are discussed in more detail in the section on gender, identity, and academics.

The causal ordering of academic self-concept and academic achievement has been of great interest to educational researchers. Research has contrasted two models posited by Calsyn and Kenny (1977). The self-enhancement model supposes that self-concept is a determinant of academic achievement. According to this model, if students develop positive self-concepts, they will achieve better. By contrast, the skill-developmental model views academic self-concept as a consequence of academic achievement. Recently, Marsh and his colleagues proposed an integration of these models, termed the "reciprocal-effects model" (Guay, Marsh, & Boivin, 2003; Marsh & Yeung, 1997). According to the reciprocal-effects model, prior academic self-concept affects subsequent academic achievement, and past achievement affects later self-concept. There is growing research support for this model, and it should be noted that Bandura (1997) proposed similar reciprocal effects in the relation of achievement to academic self-efficacy. Interestingly, research has indicated no clear developmental pattern in the causal ordering of academic self-concept and achievement, supporting the generalizability of the reciprocal-effects model across age groups (Guay et al., 2003). Despite the growing support for this model, there still is debate in the field about the directionality of the relations of academic self-concept and achievement.

GENDER, IDENTITY, AND ACADEMICS

Because gender remains a salient factor that can influence beliefs, aspirations, and experiences in this society, a discussion of academic experiences must necessarily emphasize gender. In this section, we focus on the relation between gender identity and academics in adolescence, as well as gender differences in competence and motivation in adolescence; for a more complete consideration of gendered experiences, see Ruble and Martin (1998). Broadly, "gender identity" has been used to refer to identification of one's gender group and an understanding of what being a female or male means (Eisenberg et al., 1996). More specifically, in educational research, "gender identity" has been defined as one's gender-related attitudes, meanings, and expectations for oneself (Burke, 1989). The related but distinct construct of gender roles has been frequently studied, and refers generally to characteristics and behaviors that are culturally defined as feminine or masculine (Eisenberg et al., 1996; Huston, 1983).

Gender Identity and Academic Outcomes

An ethnographic study of early adolescent (10- to 11-year-olds) experiences revealed challenges in the negotiation of gender identities and academic self-concepts, particularly for high achievers (Renold, 2001b). Many girls, especially high achievers, had difficulty talking confidently and positively about their academic successes. They expressed tension between wanting to be academically successful and not wanting to be labeled as a high achiever, because this was not seen as "feminine" or as characteristic of a "normal" girl. These findings concur with earlier findings (e.g., Bell, 1989; Orenstein, 1994) that girls fear stigmatization if they appear too intelligent. The girls in Bell's study (1989) expressed concern about social rejection for appearing to be braggarts if they took pride in their accomplishments, and for seeming aggressive if they tried to attract their teachers' attention. Orenstein (1994) found that smart girls feared alienation from male peers who did not value intellectual abilities in girls, and from female peers who might view them as too academically competitive.

Other work indicates that some girls become less willing to express their opinions at adolescence in part because of concerns that such expressions may damage their relations with others (Gilligan, 1993). However, Harter, Waters, and Whitesell (1997) found that this phenomenon is limited to public expressions (e.g., in school) of opinions by girls with a strong feminine orientation. Thus it appears to be gender orientation rather than gender that is the key factor here.

Renold (2001a) found that high achievement was not solely a problem for girls; high-achieving boys were likewise marginalized, because studiousness and academic achievement were viewed by peers as conflicting with conventional masculinity. Many of the boys employed techniques to disguise their academic motivation and achievements, including behaving disruptively in the classroom, playing down their academic successes, teasing and bullying studious boys, investing in sports to maintain their "masculinity," and devaluing girls' schoolwork. Other researchers have similarly claimed that male students learn to equate academics with femininity, because teachers reward "feminine" behavior, such as sitting quietly and cooperating, while punishing "masculine" behaviors, such as rebellion against authority and independence (see Eisenberg et al., 1996). These studies emphasize the devaluing of academic achievement in both female and male peer cultures, and indicate the challenges of negotiating one's gender identity with peer conceptions of academic orientations.

Researchers have begun to explore links between gender identity and variables such as academic achievement, motivation, and subject choice (see also Eccles, 1987, 1994). A study of high school students measured the use of stereotyped sex-traits in self-descriptions, perceptions of school subjects as feminine or masculine, academic motivation, and subject choice (Whitehead, 1996). Results indicated that boys with strongly sex-stereotyped views of academic subjects were more likely to choose to enroll in "masculine" subjects (e.g., math, physical sciences, economics, woodworking), whereas this was not the case for girls. Interestingly, this study also found that intrinsic motivation in both girls and boys was associated with choosing "feminine subjects," and extrinsic motivation (particularly for a highly paid job in the future) was associated with choosing "masculine" subjects. We explore further research into gender differences in the areas of motivation, competence, and values next.

Gender Differences in Competence Beliefs and Values

Eccles (1987) asserted that identity formation is influenced by self-perceptions of abilities, achievement goals, motivations, and gender-role schemas, among other things.

Through gender-role socialization, females and males acquire different self-concepts, different patterns of expectations for success, and different task values and goals (Eccles, 1994). This is of particular importance to our present discussion, because adolescence has been noted as a time of increased pressure to conform to gender stereotypes and expectations (e.g., Hill & Lynch, 1983; Quatman & Watson, 2001). Despite research and policy efforts to encourage all students' achievement in sex-typed domains, and evidence that actual achievement gaps between genders are decreasing in areas such as mathematics, gendered stereotypes related to specific academic domains persist (Fredricks & Eccles, 2002).

Many studies have found significant gender differences in competence and expectancy beliefs, and task values. Evidence from studies done in the 1980s and 1990s indicated that compared to girls, adolescent boys had higher ability beliefs and expectancies for success in mathematics and rated math as more important, even when girls in the sample were achieving higher math grades than boys (Eccles, Adler, & Meece, 1984; Marsh et al., 1985). More recently, however, Jacobs et al. (2002) found that adolescent boys' and girls' competence-related beliefs and values for math did not differ. For English, research beginning in the 1980s consistently shows that girls express higher ability beliefs and higher valuing of reading and English than do boys during childhood and adolescence (Eccles et al., 1984; Jacobs et al., 2002).

In a study in which adolescent girls' grade point averages were significantly higher than those of boys, girls should have enjoyed a benefit to their competence beliefs, but no gender difference in self-perceived overall academic competence was found (Quatman & Watson, 2001). Academic competence was found to be a significant predictor of global self-esteem, and because boys consistently outscore girls on measures of global self-esteem, these results paint a troubling picture for adolescent girls (Quatman & Watson, 2001).

The development of competence and motivation in male sex-typed domains may seem a daunting task for adolescent girls; however, subtle changes in classroom environment can help. Eccles (1987) reported findings from a study of 89 sixth-grade classrooms, of which 19 classrooms fostered more positive attitudes toward math in girls than in boys, in terms of confidence in math ability, expectations for success, intrinsic interest in math, and plans to take advanced math courses. Students reported that teachers in these "girl-friendly classrooms" treated students more fairly and equally, made math more interesting, and were more likely to explain the importance of math. Students were less likely to compete with each other, including comparing test scores and report cards. In contrast, the classrooms in which boys had the most positive attitudes toward math were characterized by higher levels of social comparison among students. These intriguing results demonstrate that even if girls and boys are not treated differently, they may be affected differently by similar environments. In particular, these young adolescents responded differently to competitive environments, with girls finding them less motivating than did boys. These findings have important implications for researchers and policymakers interested in increasing academic motivation.

The importance of recognizing difficulties faced by both genders is paramount, if positive changes are to be made. Sommers (2000) argued that boys really are the ones at greater risk, reviewing evidence that boys have lower grades in school, are more likely to drop out, are less likely to attend college, and are much more likely to be diagnosed as learning disabled or as having attention deficit disorder, among other things. She concluded that the concern about girls is misplaced, and that schools should be more concerned about the academic lives of boys. Although it is important to recognize the difficulties many boys face, it is unfortunate that this debate is being cast in this way. Rather than arguing either that boys have problems and girls do not, or that girls have problems and boys do not, it seems that members of each gender experience challenges that need attention in school. It therefore does not seem appropriate to focus primarily on either gender, but rather to deal with the separate issues that each gender group faces.

There has been some interesting recent work on how gender and ethnicity interact

to influence adolescents' valuing of achievement (see Graham & Taylor, 2002, for review). Graham and her colleagues found that African American and Latino boys in comparison to European American boys tend to devalue academic achievement. Girls from all three ethnic groups valued high achievement. This work illustrates the complexity of the development of achievement values, because the patterns vary across different groups. A further examination of relations between ethnicity and academics is our focus in the next section.

ETHNICITY, IDENTITY, AND ACADEMIC OUTCOMES

In the past few decades, researchers have begun studying ethnic identity development, on the grounds that identity formation may be influenced by the salient and societally important factor of ethnicity. Phinney (1996) defined "ethnic identity" as a fundamental aspect of the self that is related to one's sense of belonging and commitment to an ethnic group, and the part of one's thinking, perceptions, feelings, and behavior that is associated with ethnic group membership. Although research in this area is relatively new, important initial advances have been made in the understanding of ethnic identity development, as well as relations between ethnic identity and different academic outcomes. Indeed, as will be made clear in this section, the relation between ethnicity and academic self-concept, motivation, and competence must be examined with an understanding of the integral role of ethnic identity.

Ethnic Identity Development

Phinney (1989, 1996) developed a three-stage model of ethnic identity formation by modifying and expanding upon Marcia's (1980) model of identity formation. The first stage, *unexamined ethnic identity*, embodies either a lack of ethnic exploration or acceptance of socially ascribed ethnic attitudes (similar to Marcia's diffusion or foreclosure). *Ethnic identity search* (akin to Marcia's moratorium) is characterized by a period of exploration into the meaning of one's ethnicity and can include thinking about the effects of ethnicity on one's life, talking to others about ethnic issues, and learning more about one's ethnicity through books, events, or organizations. The last stage, *ethnic identity achievement* (Marcia's achieved identity), involves a sense of membership in an ethnic group and acceptance of the ethnicity of others. Phinney and her colleagues (e.g., Phinney, 1989; Phinney & Alipuria, 1996) have found strong positive correlations between ethnic identity and self-esteem, and other measures of psychological adjustment, such as sense of mastery, social and peer interactions, and family relations. This model has not been applied to the study of academic outcome variables, however, so future research in this area is warranted.

Ethnic Identity and Academic Achievement

The educational system in the United States has at times been successful, and at times unsuccessful, in providing experiences that foster achievement in members of minority groups (Okagaki, 2001). Many theories have been developed to provide insight into and explanation of the achievement and underachievement of minority students, each of which contributes to a greater understanding of the educative process for minority groups, while leaving some questions unanswered. Theories that focus on conflict between the cultural milieu of education in the United States and the home culture of minority groups that share certain overarching cultural values (e.g., Greenfield & Suzuki, 1998) do not explain fully why some of these groups of minority students thrive in U.S. schools, while others struggle. Theories that emphasize differences among minority groups in the cultural valuing of education (e.g., Okagaki, 2001) do not account for individual variation in academic achievement within ethnic groups. In order to explain achievement differences on an individual as opposed to a generalized group level, it is necessary to examine individual characteristics of members of minority groups (see also Graham, 1994).

In examining specific components of ethnic identity that vary individually, it is possible to obtain an understanding of variation within ethnic groups, while retaining the ability to explore general group trends.

Oyserman and her colleagues (Oyserman, Harrison, & Bybee, 2001; Oyserman et al., 1995) proposed three components of ethnic identity that may be particularly related, either directly or indirectly, to individuals' academic self-concepts: connectedness, awareness of racism, and embedded achievement.

Connectedness has been characterized as positive ingroup identification and pride in one's ethnic group. Ethnic group membership can prescribe group norms, values, and behaviors (Oyserman et al., 2001; Spencer & Markstrom-Adams, 1990). Dependent on the nature of these values and norms in relation to academics, connectedness to an ethnic group may enhance individuals' academic self-concepts and motivation.

Awareness of racism, or negative outgroup perceptions, can have differential effects on academic self-concepts of minority students. Spencer and Markstrom-Adams (1990) noted that identification with one's ethnic group can decrease motivation for academic achievement if one's ethnic group has been negatively labeled by the majority society with respect to academics. In addition, Steele and Aronson (e.g., Steele, 1997; Steele & Aronson, 1995) have researched the detrimental effects of stereotype threat on academic performance. Stereotype threat is experienced as a self-evaluative threat of conforming to a negative stereotype about one's group. Steele and Aronson (1995) found that African American students underperformed on standardized tests relative to European Americans when negative stereotypes were activated.

Embedded achievement refers to the extent to which academic achievement is viewed as an integral part of one's ethnic group (Oyserman et al., 2001). When academic achievement is defined as an ingroup trait or value, tensions between achievement and minority group status may be reduced, and academic motivation increased. In a study done with a high-poverty sample of African American adolescents, Oyserman et al. found that academic efficacy was higher when embedded achievement was high (i.e., when achievement was viewed as part of being African American) than when students indicated low embedded achievement beliefs. This relation between academic efficacy and embedded achievement was found for both girls and boys. However, the interaction of ethnic identity and gender moderated the effect of ethnic identity on academic efficacy. Specifically, high awareness of racism, high connectedness, and low embedded achievement predicted low academic efficacy for girls only. These results indicate that the relation between ethnic identity and academic self-concepts is complex and must be examined for gender-specific effects.

This concept of embedded achievement has important implications for understanding individual differences in academic self-concepts of minority youth. Rather than generalizing the value placed on academics by the culture of an ethnic group as a whole, embedded achievement allows for individual variation. Most parents, regardless of ethnicity, believe education is important and that their children will achieve a high level of schooling (see Galper, Wigfield, Seefeldt, 1997; Stevenson, Chen, & Uttal, 1990). However, a distinction can be made between the abstract value of education and pragmatic beliefs about direct benefits of education (see Mickelson, 1990; Steinberg, Dornbusch, & Brown, 1992). Some theorists argue that institutional- and policy-level treatment of minority groups in the United States limits opportunities for success and may discourage some minority students from exerting effort for academic achievement, because benefits of education are not perceived (e.g., Ogbu, 1981, 1994; Okagaki, 2001). In particular, Ogbu (1994) asserts that minority students from groups not accepted by majority society do not accrue the same benefits from education as majority students, because of a job ceiling and related barriers. In order to improve school success of minority students, he argues, economic resources for minority groups must be increased and improved, such that changes in perceptions of opportunity occur.

There is some evidence supporting ethnic-group differences in the belief that education serves a relevant, pragmatic function. Steinberg et al. (1992) found that African American and Latino adolescents in their socioeconomically diverse sample were more likely to believe they could get the job they wanted without a good education, whereas Asian American and European American students were more likely to report that a good education was necessary for attaining the job they wanted. It has been noted that in Asian cultures, there is an emphasis on educational success that is linked to the importance of bringing honor to one's family (Okagaki, 2001; Oyserman & Sakamoto, 1997). Thus, if bringing honor to one's family is seen as a duty of the child, and academic achievement brings honor to the family, these cultural values may produce motivation to overcome obstacles associated with minority status.

Subjective task-value differences could have important implications for ethnic and socioeconomic group differences in academic motivation and achievement. Academic activity choices are strongly directly predicted by domain-specific value beliefs, and values indirectly predict academic achievement (see Wigfield & Tonks, 2002, for review). The belief that hard work in school will not bring economic and social benefits is associated with low academic motivation (Okagaki, 2001). If pragmatic beliefs about long-term benefits of education are not perceived, subjective values for academic tasks may be low, which would have important implications on academic activity choice and achievement.

In our earlier discussion of the development of competence beliefs and motivation, we discussed how school environments can impact these processes, and often do so in a negative way as adolescents proceed through school. How might schools affect students' identity development? Roeser and Lau's (2002) discussion of this topic, summarized earlier, provides an important beginning, but systematic research is needed to look more carefully at the relations between different school structures, instructional practices, and identity development, including ethnic and gender identity development. We conjecture that practices fostering positive competence and motivation also help students develop a clearer sense of their identity. Practices that tend to undermine students' motivation also may detract from identity development. As discussed earlier, we are beginning to understand which instructional practices enhance adolescents' competence and motivation, and which may undermine them. However, we do not yet know whether the practices that foster competence and motivation work for all students, or whether different practices are needed for different groups of students, such as students from different ethnic groups.

To conclude this section, several considerations must be made in understanding relations of identity formation to the competence and motivation of adolescents. The process of identity formation is of the utmost importance at this age, and other processes may be seen as subsumed by this task. The development of an academic conception of the self is a part of the process of identity development and is influenced by many factors. Differences related to gendered experiences must be anticipated given existing societal inequalities and differential socialization patterns. In addition, in culturally and ethnically heterogeneous societies, the salience of ethnicity cannot be ignored, and its influences must be examined.

FUTURE RESEARCH DIRECTIONS

We have discussed in this chapter the development of children's beliefs about competence, motivation, and their identities, and how these processes are influenced by psychological factors within the adolescent and contextual factors in the experiences of different adolescents. We have learned much about the development of these processes, but much more remains to be done. With respect to competence-related beliefs and motivation, we think the observed decline in these constructs during the adolescent years continues to be a concern. We now need to look more carefully at patterns of change with different groups of adolescents, in order to understand these changes more fully. There likely are groups of adolescents who maintain positive senses of competence and academic motivation, and others who do not. Understanding these patterns would give us a more complete understanding of the developmental trends in competence and motivation.

Much also remains to be done to understand more clearly the nature of the relations among children's school experiences and the development of their competence beliefs and motivation. An especially important topic is to look to see how schools that have attempted to reform their instructional practices are influencing adolescents' competence beliefs, motivation, and identities. As we understand better the nature of these relations, we can work to develop school structures and environments that facilitate the competence and motivation of adolescents rather than contribute to their decline.

With respect to identity development, there has been much exciting work done on these processes over the last few years, building on the seminal but largely untested work of Erikson (1968). We are particularly excited about the work on gender and ethnic identity development, work that is essential to understanding the increasingly diverse population of adolescents in this country. Theorists have proposed interesting models of gender and ethnic identity development, but (particularly with respect to ethnic identity development) not much research has been done to test these models or to outline the developmental course of ethnic identity in particular. Developing measures of ethnic identity has posed numerous challenges to researchers, particularly measures that can be used with many different ethnic groups (see Phinney, 1992). As discussed earlier in this chapter, we have learned some things about relations of identity development to competence and motivation, but much more remains to be done. Initial research has explored the relations between ethnic identity (particularly, specific components of ethnic identity regarding academics) and variables such as achievement and academic efficacy, but only for certain ethnic groups. More research is needed to examine other variables and other ethnic groups, with particular attention given to interactions with gender.

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CHAPTER 14

Competence and Motivation in Adulthood and Old Age

Making the Most of Changing Capacities and Resources

JUTTA HECKHAUSEN

This chapter addresses the role of motivation under conditions of radically changing competencies during adulthood and old age. Competence in this context refers to the *potential for effective action* (i.e., primary control) in a given domain of functioning. My aim is to investigate the adaptive strategies that allow individuals to make the most of their waxing and waning competencies during this lifespan period, when many capacities, skills, and expertise rise to their lifespan peak in early or midadulthood, and then in old age plummet back to functional levels attained long before maturity was reached. Making the most of waxing and waning competencies requires sophisticated motivational self-regulation in terms of shepherding oneself through phases of goal engagement, goal adjustment, or goal disengagement. I discuss a theoretical framework for conceptualizing such motivational and self-regulational skills, the lifespan theory of control, and its action-phase model of developmental regulation (Heckhausen, 1999; Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996). Subsequently, the lifespan theory of control is applied to two distinct yet interrelated areas of competence, namely, intellectual competence and vocational accomplishment.

Note that the approach to motivation used in this chapter does not address interindividual differences in implicit motives of achievement, power, or affiliation (for a discussion of these topics, see Schultheiss & Brunstein, Chapter 3, and Kanfer & Ackerman, Chapter 19, this volume). In this chapter, I focus on the individual's motivational regulation of goal-directed action as it takes up the challenges of change in competence and vocational opportunities during adulthood and old age. Specifically, I examine the goal-*engagement* and -*disengagement* strategies that can optimize the level of motivational investment in different action phases in response to contextual opportunities and constraints at different points in time during the adult life course.

The lifespan theory of control views the striving for control over one's environment, that is, primary control, as the fundamental motivational source of competence striving and development across the lifespan (Heckhausen & Schulz, 1995). Primary control striving is conceptualized as a fundamental motivational orientation underlying other, more thematically specialized strivings (e.g., for achievement or power). Primary control striving thus holds functional primacy in the motivational system not only in humans but also throughout the mammalian strata and most likely well beyond (Heckhausen, 2000a; Heckhausen & Schulz, 1999a).

DEVELOPMENTAL CHANGE IN CONTROL POTENTIAL ACROSS ADULTHOOD AND OLD AGE

The potential for effective action or, in other words, the potential to control the environment, undergoes radical changes across adulthood. These changes are multidimensional and multidirectional (Baltes, Staudinger, & Lindenberger, 1999) in the sense that trajectories of increase, peak, plateau, and decline vary across different domains of functioning. The shape of the age-related trajectory for a given aspect of functioning (e.g., expertise, memory, attention, and social skills) depends on three major factors: the biology of maturation and aging, societal constraints and opportunities to expand competence in the relevant area, and the accumulation of experience and expertise by the individual agent. Throughout this chapter, I discuss each of these three factors—biology, societal scaffolding, and individual agency—for two domains of competence: (1) intellectual and (2) vocational achievements and capacities.

In the first section of this chapter, I focus on the boundary conditions for individual agency, namely, biological maturation and aging, and societal scaffolding. I discuss the role and potential of individual agency in the third section of this chapter, after considering the lifespan theory of control and its model of developmental regulation in more detail (in the second section).

INTELLECTUAL AND VOCATIONAL CAPACITIES AND ACHIEVEMENTS

In this section, the biological boundary conditions for the development of intellectual competence and vocational expertise are discussed first. Research in this area has focused on developmental plasticity as the key to understanding cognitive aging. Experimentally induced and engineered plasticity is a prime strategy in cognitive aging research. Naturally occurring plasticity is, by contrast, very much a product of individual agency directing learning and experience, and is therefore reserved for the later section on individual agency in the regulation of motivational investment. In the last part of this section, I discuss the societal scaffolding of intellectual and vocational capacities in terms of institutional and social–structural constraints and opportunities.

Biological Maturation and Aging

Generally speaking, domains of competence that rely heavily on high-level physical functioning follow change trajectories with steep increases and decreases, and narrow and relatively early peaks. Examples are athletic excellence and world-class performances (Ericsson, 1990; Schulz & Curnow, 1988), which peak at early ages and typically only last for a narrow age window. Differences between various athletic disciplines are based on the extent of challenge of the given sport to physical strength and flexibility relative to the required acquisition time. Thus, individual world-class performance in track-and-field sports peaks earlier than performance in team sports (Schulz & Curnow, 1988).

Age trajectories of extreme competencies reflect early benchmarks for constraints due to biological changes associated with aging. Whereas early declines do not impair performances in most common, everyday activities in work, family, and leisure activities, they do become noticeable in multitask situations, such as when driving and talking, monitoring multiple moving objects (e.g., air traffic controller), or directing groups of diversely acting individuals (e.g., teacher). Research in cognitive aging using dual-task paradigms has uncovered not only drastic declines in multitask performance in early

midlife (Li, Lindenberger, Freund, & Baltes, 2001; Lindenberger, Marsiske, & Baltes, 2000) but also specific strategies used by younger and older adults when trying to maintain reasonable performance levels in either task (Kemper, Herman, & Lian, 2003).

With regard to regular cognitive functioning (e.g., as indicated by intelligence tests) decline in performance is typically restricted to fluid intellectual skills (e.g., memorizing nouns, mental rotation) that have fallen out of practice, whereas crystallized abilities (i.e., factual and procedural knowledge) remain stable into old age. Up to very old age, fluid skills can be reactivated by instruction and even minimal practice (Baltes, Dittman-Kohli, & Kliegl, 1986; Baltes, Sowarka, & Kliegl, 1989) and then rise again to levels comparable to those of younger adults. Moreover, older adults can acquire new fluid skills (e.g., memory for nouns, names) and attain levels of performance comparable to those of young adults (Baltes & Kliegl, 1992; Baltes & Lindenberger, 1988; Baltes et al., 1986). For instance, older adults acquired the Method of Loci (i.e., associating memory items with locations on a preset route by forming vivid mental images) to memorize lists of up to 30 nouns and, after some practice, were able to reproduce all nouns, just like their younger adult counterparts. It is only when time constraints (i.e., shortened presentation interval) and cognitive load (i.e., interference from previous lists) are pushed to the limit that older adults fall short of younger adults in their performance (Mayr & Kliegl, 1993; Mayr, Kliegl, & Krampe, 1996) Plasticity of fluid skills fades away only in very advanced old age. For instance, in a sample of adults age 80 years and older, memory training using the Method of Loci produced only modest performance gains immediately after training that were not further enhanced by practice (Singer, Lindenberger, & Baltes, 2003). These decreases in experimentally induced cognitive plasticity mirrored declines found in perceptual speed, memory, and fluency in a population of German older adults, with the old-old segment of this sample showing the steepest decline (Singer, Verhaeghen, Ghisletta, Lindenberger, & Baltes, 2003). Moreover, even recall of factual knowledge, a stable and age-resilient crystallized intellectual ability, showed decline in participants older than 90 years of age.

Thus, for most practical purposes, older adults do not experience a decline in cognitive functioning until very advanced old age. Older adults can use their extensive factual and procedural knowledge effectively in situations that require expertise-relevant and/or overlearned responses (i.e., level 2 cognitive processing, see Kliegl, Krampe, & Mayr, 2003). Basic general cognitive processes (i.e., level 1 cognitive processes) show relatively little aging effects that can be compensated for by increased time investment and focus. However, cognitive aging does show negative effects on competence, when new learning and more complex, coordinated cognitive processing is required (level 3 cognitive processing; Kliegl et al., 2003). An example of the latter is any kind of multiple cognitive demand, such as driving while speaking on the phone or monitoring multiple processes simultaneously. Moreover, individuals in careers requiring highly developed sensory and intellectual abilities may experience constraints in functioning, because their professions push them to the limits of cognitive functioning that is vulnerable to aging-related decline. In the third section on regulating motivational investment as an adaptation to changing capacities, I discuss strategies of motivational regulation that allow the individual to maintain realistic levels of expert functioning into old age, while not despairing at the inevitable loss associated with biological aging.

Societal Opportunities and Constraints

The development and maintenance of high intellectual functioning, expertise, and peak performance is shaped not only by biological changes associated with aging but also by societal factors. On a general level, the greater the sophistication of technology involved in a society's economy, the greater the division of labor and, consequently, the greater the specialization in a society's labor force (Durkheim, 1893/1977). Specialized labor needs to be based on individual aptitude and motivation to build expertise. Rigid class or caste systems that lock individuals into certain positions in society (e.g., serf, vassal, or lord) inevitably imply that there are few or no opportunities for upward mobility. However, any sophisticated system of specialized labor requires a certain degree of social mobility, at least intergenerationally and at best intragenerationally. Thus, modern, highly industrialized societies typically have high degrees of (upward and downward) social mobility that provides substantial "playing fields" for individual agency (Heckhausen & Schulz, 1999b).

Modern, highly industrialized societies, however, differ with regard to intraindividual mobility, especially in adulthood, after academic and vocational education is completed. In the European countries, and in Germany in particular (Blossfeld & Mayer, 1988), social status and vocational careers are typically relatively stable after late adolescence, with little potential for career change in adulthood. Recent trends, however, indicate greater mobility between vocational careers in early adulthood (Heinz, 1999). In the United States, permeability (Hamilton, 1994) between career paths is preserved into midadulthood. Thus, an individual who decides to pursue a midlife career change has much better chances to realize the goal in the United States than in Europe. The downside of this greater permeability is its inevitable companion: less clarity or "transparency" (as Hamilton puts it) of career paths (Sennett, 1998), which turns the entry phase into work life in the United States into a period of floundering (Hamilton, 1990).

What about opportunities for growth in competence beyond early adulthood? For persons in professional careers, growth in challenge and competence often continues well into midlife. However, career development, final promotions, and retirement are constrained by state-regulated and corporate rules about age, timing, and sequencing of promotion. Such institutionalized, age-related constraints for professional development can get in the way of individuals who try to attain long-cherished career goals (Heckhausen, 1999). For example, implicit rules about age limits for moving up the executive ladder in a company can function as deadlines. These implicit, age-normative rules create urgency for corporate executives who get close to the age-related deadline, and futility for those who have already passed the deadline, and obstruct the attainment of long-term career goals when the individual passes implicit or explicit age deadlines. More generally, social institutional regulations generate patterns of life course and particularly career transitions (Sørensen, 2001). Conditions for competence growth are ideal when the individual's age and position in the career-related sequence of transitions fits with the age and sequence prescribed by the social institution regulating employment. Deviations from such "on-time" patterns require compensatory efforts on the part of the individual to overcome the obstacles associated with "swimming against the stream." For example, returning to school in midlife is possible, but it requires considerable effort, usually is less supported by society (student funding), and implies financial sacrifices that would be less difficult to bear for a younger adult with fewer family obligations (Heckhausen, 1999; Heckhausen & Schulz, 1999b).

Notwithstanding the late-career opportunities in professional vocations, most career tracks do not offer much chance to expand competence after the initial period of establishing oneself. Therefore, most people have limited opportunities to increase competence in their work life after their mid-20s or early 30s. In one such scenario, after attaining an educational degree and completing vocational training on the job, or in a vocational training institution, employees may soon reach the peak and plateau of their occupational career, where they can hope to remain until they retire. This pattern is actually optimistic in view of the development of the labor market in the globalized world economy, which is characterized by less predictability, displacement of skilled by unskilled labor, and a general pattern of temporal jobs replacing stable employment (e.g., Sennett, 1998). Again, differences between countries regarding the permeability of vocational career paths may offer more or less potential to change to a different career that may hold more mastery potential. However, by middle adulthood, such options become extremely costly for the individual who is giving up a career path and starting all over again. This situation of severely constrained potential for growth in competence after early adulthood bears the risk of boredom and loss of meaning for those individuals for whom achievement and growth in competence holds important personal meaning. An ex-

ample is professions that require college degrees, or even advanced graduate degrees, but become routine after some years of experience, as is the case for some subspecialties of medicine, law, or engineering. In these professions, individuals with an aptitude for intellectual challenge, demonstrated by their successful completion of graduate degrees, end up underchallenged and bored long before it is time to retire.

In order to minimize their discontent, these individuals need to invest effort into motivational adjustments as a central part of their developmental regulation during midlife. I discuss possible strategies for such adjustment in the section on regulating motivational investment.

THE LIFESPAN THEORY OF CONTROL AND ITS IMPLICATIONS FOR MOTIVATION AND DEVELOPMENTAL REGULATION

The lifespan theory of control (Heckhausen, 1999; Heckhausen & Schulz, 1993, 1995; Schulz & Heckhausen, 1996) views individuals as agents in their own development (Brandtstädter & Lerner, 1999), who are actively striving to optimize their potential to control their environments and important outcomes in their lives (i.e., primary control) across the life course. Primary control of one's environment can be conceived in a fundamental sense as competence that is expanded and protected throughout the life course (Brim, 1992). Thus, the lifespan theory of control is about the motivation for competence, and changes and consequences for the individual's active role in lifespan development.

Control Processes Involved in Goal Engagement and Disengagement

The lifespan theory of control proposes two types of control striving: primary and secondary. *Primary control striving* refers to behavior directed at producing effects on the environment (i.e., effects of behavior on tangible outcomes). Examples of this might include trying to construct a Lego house, studying for an exam, applying for a job, or trying to persuade someone to buy one's house. *Secondary control striving* is behavior and cognition directed at one's own motivational resources by either focusing volitional commitment or compensating for a threat to self-esteem. Examples of secondary control striving directed at volition include imagining the benefits of attaining the goal, avoiding tempting distractions, and enhancing one's confidence by being successful with the ongoing primary control striving. Primary and secondary control striving work hand in hand during *goal engagement* to allow the individual to mobilize behavioral (primary control) and motivational (secondary control) resources. Goal engagement involves three kinds of control strategies:

1. *Selective primary control* strategies refer to investing behavioral resources (time, effort, and skills) into goal pursuit (e.g., "I will work hard to have a good career"; from Optimization in Primary and Secondary Control (OPS-Scales); Heckhausen, Schulz, & Wrosch, 1998).
2. *Compensatory primary control* strategies involve getting help or advice from others (e.g., "If I run into obstacles with my career plans, I will ask others for advice") and/or using detours and unusual means toward a desired end (e.g., "I would take a less desirable job now, if it meant I could get the job I wanted in the long run").
3. *Selective secondary control* strategies refer to [volitional] self-regulation that is directed at enhancing one's [volitional] commitment to a chosen goal (e.g., "I often imagine how overjoyed I would be if I found a good job" or "I will be careful that other things do not distract me from getting a good job").

When goal attainment is not feasible (either impossible or too costly), *goal disengagement* is the adaptive response to prevent waste of behavioral and motivational resources that can be more productively applied to other primary control goals. Goal disengagement relies on strategies of *compensatory secondary control* that serve either of two functions: goal disengagement or self-protection. Goal disengagement from unattainable goals is important in order to preserve resources for other, more feasible goal strivings and can be facilitated by devaluing the previously held goal (e.g., "If I am not successful in my career, I will know that it was not the right thing for me anyway"). *Self-protection strategies* help the individual to deflect potential negative effects of failure experiences on self-esteem or action-related optimism. Examples of the self-protective strategies include attributions to external factors, thus avoiding self-blame (e.g., "If I run into problems with my schoolwork, I keep in mind that it is not all my fault") and comparison with others in similar or less favorable circumstances (e.g., "If I'm not successful in my career, I will say to myself that others are in a similar situation").

Action-Phase Model of Developmental Regulation

Throughout life, the individual confronts multiple trajectories of increasing and decreasing opportunities to attain important goals (see Figure 14.1). These rising and falling curves of opportunity have phases of maximium opportunity, when relevant control striving is most effective. Opportunity curves for different developmental goals are stacked across age, resulting in a developmental timetable of goals and transitions. An effective developmental agent would engage in and disengage from developmental goals in age-graded synchronization, with waxing and waning opportunities across the life course. According to the lifespan theory of control, *optimized goal choice* means making use of favorable opportunities by engaging in "on-time" goals (e.g., "The jobs that I get in the next few years will have a lot of influence on the rest of my life") and avoiding goal engagement when opportunities have diminished or are not yet available. At the same time, long-term consequences of goal engagement need to be taken into account.

The lifespan theory of control and its action-phase model of developmental regulation generates specific predictions about the control processes activated in the sequence-of-action phases comprising a cycle of action around the pursuit of a developmental goal (see Figure 14.2). In the initial phase of goal choice, "metaregulatory" optimization strategies are required (i.e., choosing goals when opportunities are optimal, avoiding negative trade-offs for goals in other domains, and avoiding exclusive reliance on only one goal). Once a decision about a goal (e.g., striving for a promotion, learning a new sport) has been made, the individual should enter the volitional phase of action when goal engagement–related control strategies are activated (i.e., selective primary control,

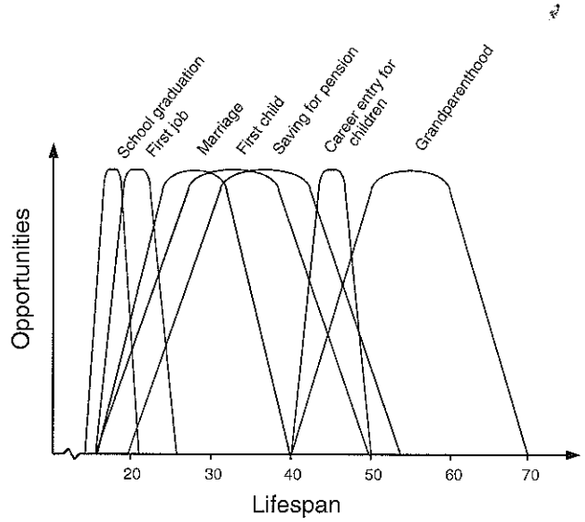

FIGURE 14.1. Age-graded sequencing of opportunity trajectories (hypothetical) for different developmental goals. Adapted from Heckhausen (2000b). Copyright 2000 by Elsevier. Adapted by permission from Elsevier.

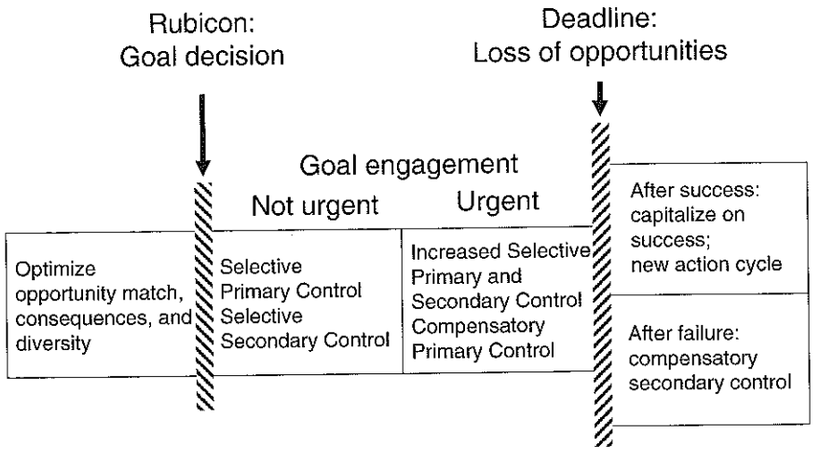

FIGURE 14.2. Action-phase model of developmental regulation. Adapted from Heckhausen (1999). Copyright 1999 by Cambridge University Press. Adapted by permission.

selective secondary control). For goals that are subject to declining opportunities (e.g., training or job opportunities only available in early adulthood), goal engagement becomes more urgent over time, so that goal engagement control strategies need to be employed more completely (i.e., compensatory primary control strategies may provide additional means for goal attainment) and more intensely. In such phases of urgent goal engagement, and particularly when the individual encounters unexpected obstacles, volitional self-regulation is essential to ensure that one's actions stay on track with his or her goals. Thus, under conditions of challenged goal engagement, compensatory primary and selective secondary control strategies may be the hallmark of successful developmental regulation. Finally, when goal attainment opportunities run out, or it becomes clear that the chosen goal is unattainable, the individual should disengage from the now-futile goal and use compensatory secondary control strategies that help him or her to preserve behavioral and motivational resources needed for future goal engagements.

A key proposition of this action-phase model is that transitions between action phases are discrete and organized rather than continuous and disjointed. Thus, when the individual makes a decision about a goal, the relevant control processes are activated at the moment of crossing the decisional Rubicon and operate in concert. Similarly, when opportunities for goal attainment fade away, the realization of futility and resulting goal disengagement should be discrete in time and orchestrated in means, with multiple compensatory secondary control strategies activated jointly.

Empirical Illustrations of the Lifespan Theory of Control and the Action-Phase Model of Developmental Regulation

The action-phase model of developmental regulation, with its specific predictions about phase-appropriate control strategies, has been employed in several empirical studies (see reviews in Heckhausen & Farruggia, 2003; Schulz, Wrosch, & Heckhausen, 2003). All these studies address shifts in motivation and control processes that are associated with changes in opportunities to attain important goals in life, such as having a child, finding a romantic partner, entering a career, or maintaining one's independence in everyday life. A series of studies investigated the shift from urgent goal engagement to disengagement after having lost opportunities (e.g., to have children), thus passing a developmental deadline for a given life goal. For

example, the motivational engagement with the developmental goal of bearing a first child was studied in childless women younger and older than 40 years of age (Heckhausen, Wrosch, & Fleeson, 2001). Moreover, engagement with and disengagement from partnership goals were studied in men and women who had recently separated from or committed to a partnership, and who were either in early adulthood, when remarriage probability is high, or in late middle adulthood, when remarriage probability is low (Wrosch & Heckhausen, 1999). In these studies, before the loss of goal-relevant opportunities (e.g., losing fertility, encountering fewer potential romantic partners), the age groups expressed goal-commitments and control strategies indicative of intense goal engagement, whereas after the loss of opportunities, the age groups endorsed control strategies of goal disengagement and self-protection. For instance, younger, recently separated adults stated that finding a new partner was a high priority goal for them, and that they often imagined how happy they would be when they found a new partner. In contrast, recently separated adults in their 50s endorsed views to the effect that, for them, life could be fulfilled without a partner, and that they did not blame themselves for being single.

Opportunity-congruent goal engagement and disengagement was found not only in explicit self-reports of goals and control strategies but also in selective information processing. Predeadline groups were more likely than postdeadline groups to recall goal-relevant information in an incidental memory task. Most importantly, the degree to which control strategies and information-processing biases were congruent with goal opportunities was positively related to psychological well-being and mental health, both concurrently and across a period of 18 months. Thus, if adults at an age at which the opportunities for goal attainment were favorable reported goal engagement, they were less likely than those who were not goal-engaged at this age to report depressive symptoms. Conversely, among adults at an age in which goal opportunities were unfavorable, those adults who were disengaged reported better mental health than those who were engaged. To give a specific example, the same statements of goal disengagement ("I can lead a happy life without a partner") were associated with negative affect development in younger adults and positive affect development in late-midlife adults.

This paradigm of investigating developmental regulation during transitions from better to worse was also applied to the study of coping with radical losses in competence associated with disability. It was shown that, depending on the reversibility and, thus, controllability of functional loss associated with the disability, goal engagement (for high controllability) versus goal disengagement (for low controllability) was more adaptive (Wrosch, Heckhausen, & Lachman, 2000; Wrosch, Schulz, & Heckhausen, 2002, 2004). For instance, with acute and more controllable ailments, but not with chronic uncontrollable illnesses, primary control strategies of promoting health and fighting the illness were helpful in reducing depressive symptoms in older adults. Finally, a study of life regrets showed that disengaging from a goal of undoing the regret (e.g., at not having gone to graduate school) and viewing what had been done as out of one's control is adaptive in older adults but maladaptive in younger ones (Wrosch & Heckhausen, 2002). In each of these studies, goal engagement and disengagement that were congruent with available control potential (i.e., engagement with high control potential, disengagement with low control potential) were found to be associated with positive developmental outcomes, whereas incongruent goal engagement was maladaptive.

Currently, studies in several countries are using the lifespan theory of control and its model of action-phases in longitudinal studies. These studies investigate sequential patterns and causal relations between changing opportunities for goal attainment, adaptations of control strategies in terms of goal engagement and disengagement, motivational resources, and physical and mental health. These ongoing longitudinal studies address a wide variety of developmental and self-regulatory challenges, including adaptive and maladaptive pathways in midlife ("Integrative Pathways to Health

and Illness—MIDUS II [Midlife in the U.S.]," National Institute on Aging (NIA), PI: Carol Ryff), and old age ("Health and Aging," Canadian Institutes of Health, PI: Judith Chipperfield). Other studies using the lifespan theory of control and its model of developmental regulation focus more on specific challenges, such as the adaptation to caregiving ("Psychiatric and Physical Health Effects of Caregiving," National Institute of Mental Health (NIMH), PI: Richard Schulz), to vision loss (Horowitz, Boerner, Reinhardt, & Brennan, 2002; Wahl Becker, & Burmedi, 2002; "Control Strategies and Mental Health in Impaired Elders," NIMH, PI: Amy Horowitz; "Course and Consequences of Control Regulation in Age-Related Low Vision," German Research Foundation, PI: Hans-Werner Wahl), to cancer treatments (Pinquart & Silbereisen, 2002; "Treatment Decisions and the Revision of Life Plans Among Elderly Cancer Patients," German Cancer Aid, PIs: Martin Pinquart & Rainer Silbereisen), to intergenerational transmission of private business enterprises ("What Facilitates Family Business Transmission?: The Adaptive Roles of Goal Adjustment and Autonomous Motivation," Social Sciences and Humanities Research Council of Canada, PI: Carsten Wrosch), to life regrets (Wrosch & Heckhausen, 2002), and to interpersonal conflict in old age (Rook & Sorkin, 2002; "Impact of Negative Social Exchanges in Later Life," PI: Karen Rook). A number of studies address control strategies employed to manage major transitions in education and career, such as the management of failure and success in the Chinese university entrance exam (Wong, Li, & Shen, 2004), the transition to and persistence in college education ("A Longitudinal Analysis of Career Uncertainty and Technological Uncertainty on Motivation, Achievement, and Attrition of University Students," Social Sciences and Humanities Research Council of Canada, PI: Raymond Perry), the transition from school to vocational training in German adolescents (Heckhausen & Tomasik, 2002; "Developmental Regulation during the Transition from School to Vocational Training: Adaptations in Primary and Secondary Control Striving," German Research Foundation, PIs: Jutta Heckhausen & Olaf Köller), and the transition from school to college and work in young adults in the United States (Heckhausen, 2003a).

Ascending and Descending Levels of Aspiration for Successful Development

In the most recent development of the lifespan theory of control, the question of how individuals move from one goal-engagement cycle to the next is addressed. More specifically, the issue here is which goal individuals select when they have just succeeded versus failed in a goal pursuit. Does the individual stay within the same domain of control? Which goals can substitute for each other, without challenging the emotional balance and motivational resources of the individual? In their lifespan model of successful aging, Schulz and Heckhausen (1996) distinguished between four levels of control potential: survival, general health, everyday functioning in major domains, and peak performance in select domains of expertise. These levels of successful functioning provide the objectifiable backdrop for identifying successful aging and distinguishing it from suboptimal aging.

After several years of research experience with the action-phase model of developmental regulation, the processes allowing the individual to move between these levels of control potential have become clearer. According to a model of ascending and descending levels of aspiration (Heckhausen, 2003b), individuals disengage from previous goals and engage in new goals in a discrete and organized fashion, akin to the transitions between action phases. For most domains of functioning (i.e., domains of competence), goals can be organized in a staircase manner, with the least difficult, and at the same time most essential, goals at the bottom and the most challenging goals at the top. When experiencing and/or striving for growth in control, individuals move their aspirations from lower to higher level goals in a stepwise fashion. At each time, the individual is engaged with a goal adjusted to his or her currently experienced control capacity, having disengaged from the previous, lower level goal and reengaged with a goal on the next level of control. Conversely, when experiencing loss, individuals withdraw from higher levels of goal challenge to lower levels of difficulty, in accordance with the control potential they experience. This way, at each level of control potential across the life course, individuals can attain or maintain the optimal level of control in their goal pursuits, without wasting resources in futile, overchallenging goal pursuits or missing control opportunities by setting underchallenging goals that fall short of their current control potential. When applied to the area of health psychology and aging, these ascending and descending levels of aspiration can be conceptualized as lines of defense when individuals are fighting disability, and lines of advance when they are striving for rehabilitation (Heckhausen, 2003b). For example, someone with progressive arthritis might give up doing her own grocery shopping, but strive to maintain the capacity to do her own cooking (line of defense). In contrast, someone with the same illness and access to a new physiotherapy might strive to extend his mobility, from being restricted to the house to running errands in the neighborhood.

REGULATING MOTIVATIONAL INVESTMENT AS AN ADAPTATION TO CHANGING CAPACITIES IN INTELLECTUAL COMPETENCE ACROSS ADULTHOOD

In this final section, I discuss how individuals can regulate their motivational investment in response to changing control potential over the life course. For a more detailed discussion of the requirements in executive functioning, see Heckhausen & Mayr (1998). As noted earlier, in this chapter, I do not consider the implications of interindividual differences in achievement and work motivation, but focus on regulatory processes of motivational investment in vocational contexts. A more detailed discussion of work motivation and the role of the achievement motive can be found in Kanfer and Ackerman (Chapter 19, this volume; see also Schultheiss & Brunstein, Chapter 3, this volume for a discussion of the achievement motive).

Given the biological and societal constraints, four scenarios of competence change in adulthood and old age capture the range of challenges to the motivational system: the nonprofessional vocational career, the high-level professional career, the peak performers' developmental course, and the late-life decline and disability in very advanced old age. Here, I discuss the challenges to motivational regulation implied in each of these four scenarios and consider strategies to master these regulatory tasks.

The Nonprofessional Career

As I discussed earlier, most people work in careers (e.g., blue-collar workers, clerks, salesmen) that involve an early phase of training and getting established that does not extend beyond their 20s or early 30s at the most. During this phase of getting established in a career, self-esteem increases after the challenging phase of transition into employment (Dooley, 2003). Also, conceptions about the controllability of outcomes and one's own control potential become more differentiated and integrated, leading to a more stable and realistic world view that integrates both external and internal factors (Hoff, Lempert, & Lappe, 1991).

Once the plateau of vocational achievements is reached by the late 20s or early 30s, the activities the person is involved in during the working day remain pretty invariant, so that further growth in competence is unlikely, if not prevented, at least for those who do not start their own business. These diminished opportunities for growth in competence after the third decade of life should pose a substantial challenge for motivational self-regulation, especially for those individuals who hold strong achievement motives and pursue achievement-related superordinate goals (Heckhausen, 1986). Three alternative paths of motivational self-regulation seem viable in this situation: (1) a disengagement from achievement-related, superordinate goals and/or motives relative to other motives; or (2) a switch of one's investment from work-related pursuits to expanding control and competence outside the work life in leisure activities (e.g., sports); or (3) a switch of career to a field that allows longer term professional growth. All three motivational changes involve goal disengagement that can be expected to be facilitated by the availability of alternative or substitute goals (Aspinwall & Richter, 1999; Wrosch, Scheier, Carver, & Schulz, 2003),

and by the employment of compensatory secondary control strategies of disengagement and self-protection. The third path, into a new career, involves high costs, because substantial attainments in the previous career have to be forfeited, and a professionally promising new career typically requires extensive educational investment and a substantial risk of failure. In contrast, the first two paths of self-regulation (the disengagement from superordinate achievement goals and the increased investment in goals outside of work) are facilitated by the predictability in normative career patterns in nonprofessionals. This predictability allows the individual involved in these nonprofessional careers to anticipate the need for motivational adaptation to the fading challenges of the job.

The High-Level Professional Career

Even in late midlife and old age, competence in most professions does not show substantial decline (e.g., Salthouse, 1984; Sparrow & Davies, 1988; Waldman & Avolio, 1986). Moreover, people working in high-level professions typically have to self-regulate their own motivation and, thus, rely on setting their own goals (von Rosenstiehl, Kehr, & Maier, 2000). As a consequence, the degree to which professionals believe the organization (e.g., the company) facilitates goal attainment is crucial to their job satisfaction and organizational commitment. Morever, professional managers experience challenges for professional development and growth well into midlife and, for some, this extends even up to retirement (Kehr, Bles, & von Rosenstiehl, 1999).

One avenue by which professional development is advanced is professional training in midcareer. However, training success is typically constrained by limited transfer of new skills and knowledge to different areas of managerial responsibility. Kehr and colleagues (1999) showed that managers who did not simply adopt the goals proposed by the trainers and supervisors, but carefully evaluated and weighed them in the context of their own needs, experiences, habits, and preferences, were more likely to remember the goals 3 months after completing the training, to experience more positive emotions, and to achieve greater training transfer to their goal realization and criteria fulfillment at work.

In another study, Kehr (2004) investigated the discrepancy among implicit and explicit motives, volitional strength, and their association to subjective well-being in managers of German companies. The results show that across a 5-month period, volitional strength deteriorated with increasing discrepancies between implicit and explicit motives. Moreover, volitional strength mediated the association between implicit–explicit motive discrepancy and subjective well-being over time. Thus, subjective well-being was impacted by implicit–explicit motive discrepancy to the extent that the discrepancy undermined volitional strength.

In summary, in professional, top-level careers, intrinsic motivation plays an even more crucial role than in other career tracks. Having entered their careers with a strong and success-oriented achievement motive, professionals typically cherish these continued challenges and suffer when they are withdrawn or compromised (von Rosenstiehl et al., 2000). The dominant motivational pattern for this group follows a path of contingent success and occasional setbacks, followed by upward or slightly downward adjustments of work and career goals. The overall trajectory is one of continued growth in competence and rise in status. Thus, one can expect that the dominant motivational adjustment is one of habituation to success; when attaining yet another subgoal, enjoyment and pride about the success is relatively moderate and short-lived, and may even reflect a pattern of diminished returns (Lindenberg, 1996). It is essential for these professionals in high-level positions that intrinsic incentives for achievement remain strong. This is not always the case, as power-related activities gain in importance in later stages of professional careers (in business, science, etc.).

Expertise and Peak Performance

Expertise and peak performance careers and their motivational requirements are discussed in more detail, because they represent a testing-the-limits case for management of adjustments in motivational investment.

Peak performances in intellectual competence require the convergence of multiple facilitative factors: biological prime coupled with sufficient training and experience in the domain of expertise, a conducive social context (society, family), and substantial individual investment in the acquisition and perfection of the expertise. Simonton (1994) has investigated achievers of greatness in many domains and across historical time. Based on his extensive data about the life histories of great achievers in the domains of science, art, music, political leadership, business, Simonton developed a normative productivity curve for achieving greatness, displayed in Figure 14.3. According to this curve of greatness across the life course, truly great achievers begin publishing their greatest work sometime in their 20s, ascend to their optimum level near 40 years of age, and show a slow descent in achievements after reaching the optimum. This normative trajectory reflects the life-time it takes to acquire expert levels of knowledge and skill, thus, the relatively late onset (e.g., compared to athletics) in the third decade of life. Moreover, the complexity of knowledge and skills is reflected in the time it takes to develop them to perfection, thus, the optimum level at about 40 years of age. Finally, biological decline and/or other kinds of resource depletion lead to the gradual decline after age 40, with the gradualness reflecting the individual's efforts to sustain the high level of functioning into old age. Interestingly, Simonton concluded from his analyses that throughout careers of great achievements, the ratio of all works (productivity) to high-quality works (creativity) is stable across age, the "equal-odds rule." Across the life course, the ratio of hits to total output does not appear to change, irrespective of level of expertise.

Research on peak performance in intellectual or artistic domains has revealed the key role of individual motivational investment in acquiring the expertise. Ericsson and his colleagues have shown that for several domains of expertise, most notably for musicians, the highest levels of performance can only be achieved after around 10 years of extensive, daily, deliberate training and practice (Ericsson, Krampe, & Tesch-Römer, 1993). These findings converge with Simonton's analyses of individuals' trajectories of greatness, showing the first top achievements after 20 years of age, if we assume that serious, deliberate practice starts around age 10. According to Ericsson et al. (1993) best achievers in their domains typically accumulated more than 10,000 hours of training and practice until they reach the age of 20 years. Such investment of time and effort requires a highly selective motivational com-

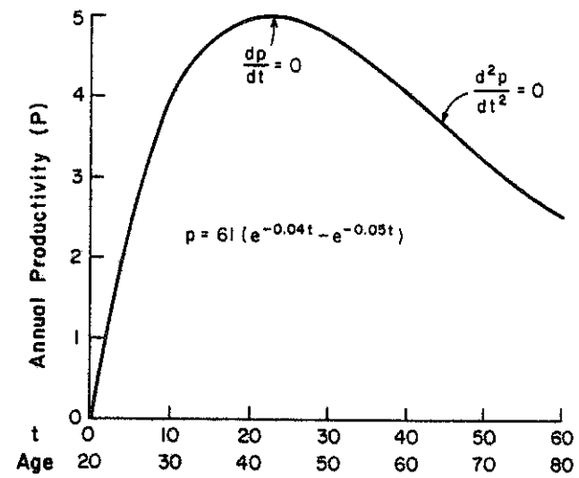

FIGURE 14.3. Annual productivity in all domains of greatness. From Simonton (1994, p. 183). Copyright 1994 by The Guilford Press. Reprinted by permission.

mitment to the domain of expertise, at the expense of other domains of functioning, and with potential high risks should the selected domain of expertise not bear the expected results. Such highly selective investments of time, effort, and motivation early in life can have high costs and bear significant risks, because it narrows the set of viable developmental paths at a very early point in life, when the ultimate fruitfulness of the selected path to peak performance is still highly uncertain (Heckhausen & Schulz, 1999b). The public learns about those who ultimately are successful in this immense investment of life-time and energy; we do not know about the many people who set out on this path and never make it to greatness.

However, those who do achieve peak levels of functioning become highly skilled in optimizing the efficacy of their investments in deliberate training and practice. For example, highly accomplished violin soloists select the times of day when they are most rested for their deliberate practice, practicing in the morning and after a nap in the afternoon (Ericsson et al., 1993).

What happens to the top levels of performance when individuals age? In a study of expert-level (but not world-class level) graphic designers, older designers obtained higher levels in visual imagery than older adults in other professions (Lindenberger, Kliegl, & Baltes, 1992). However, the proficiency in the visual imagery of these older experts fell short of that in any younger participant. Thus, aging-related decline was attenuated but not eliminated by relevant talent, experience, and long-term practice.

A more recent study on solo pianists showed that their fluid intellectual skills undergo similar aging-related decline as nonpianists. However, the older pianists managed to maintain the level of high-speed performance in expertise-related tasks at almost the same level as younger pianists. The findings indicate that the degree to which performance decline was absent in these former concert pianists was associated with the amount of deliberate practice performed in later adulthood. Thus, when these top performers reach midlife and old age, they use deliberate practice to fend off age-related decline in performance that is affecting their basic cognitive skills (Krampe & Ericsson, 1996). Such deliberate practice in advanced age can selectively focus on subcomponents of the skills involved in the expertise, thus resulting in individual-specific patterns of aging effects across subcomponents of the skill. As aging-related decline in sensorimotor and cognitive functioning progresses further, experts have to focus on narrower tasks and allow themselves more time to maintain the selected performance. Goal engagement and its control processes (selective primary, selective secondary, and compensatory primary control) become ever more pronounced and selective, of course, at the expense of other activities (e.g., leisure time and social contacts). This puts considerable strain on the motivational system, because the costs of maintaining the expertise level of functioning will increase ever more with advancing age. Eventually, in more or less advanced old age, most experts and peak performers will have to disengage from their lifelong dedication to top levels of performance in highly selective domain of competence. Such disengagement bears high disruptive potential for self-esteem, life satisfaction, and generally motivational and emotional resources for the primary control projects still feasible in old age. Thus, even and especially for the elderly top expert and previous peak performer, goal disengagement, goal substitution with feasible goals, and self-protective interpretations of the loss in competence are essential. To maintain as much competence as possible given the biological and societal constraints is the key to successful development in adulthood.

Late-Life Decline and Disability

In very advanced old age, chronic illness and disability become a reality for almost everyone who survives into this last phase of human longevity. As for earlier phases of life, successful development in very late life (i.e., after 85 years of age) is a function of the degree to which goal engagement and disengagement strategies match the actual control opportunities. At each level of control compromised by illness and disability, some primary control endeavors are still feasible and adaptive, whereas others have become illusory and are thus wasteful of the precious few control resources. Calibrating one's goal investments to the available control resources is thus ever more important the older an individual is, and the fewer control resources he or she commands. Control investments need to be focused and well orchestrated (i.e., all control strategies of goal engagement should be activated) to be fruitful. Likewise, goal disengagements should be swift and complete, instead of drawn out or hesitant. Thus, the action-phase model of developmental regulation can be applied also to the process of adaptation to constrain control resources that come with old age, disability, and illness.

In a "lines of defense" model, Heckhausen (2003b) has identified five lines of defense as goals for primary control of illness and disability: (1) Avoid disease/disability, (2) protect one's own control (self-reliance) over activities of daily living, (3) use others' help and technical aid to maintain activities of daily living, (4), minimize discomfort, and (5) delay death. With progressing illness and disability, the individual can decide to disengage from a higher level of aspiration (e.g., avoid disease/disability) and instead invest control resources in a lower level (e.g., protect one's own control over activities of daily living). Persisting on a given level in spite of substantially and irreversibly lost primary control potential would be wasteful of control resources and put the individual at risk of sliding uncontrollably further down the cascade of control levels. On the other hand, giving up more control than necessary by dropping down to a lower level than warranted by actual control potential may be maladaptive, too, unless the resources needed for maintaining a given level of disability (e.g., performing activities self-reliantly) prevent the individual from striving for goals (e.g., maintaining a cherished hobby) that are more valued and personally meaningful (Baltes, 1996).

The key proposition of the lines-of-defense model is that goal disengagements and engagements allow for an organized retreat that enables the individual to utilize his or her remaining control potential to defend realistic levels of primary control. The lines-of-defense model can be used for the inverse direction of health-related change of control potential, too, namely, in processes of rehabilitation, during which the individual advances the levels of control for which he or she is striving to higher and higher levels. The greatest regulatory challenges occur when a line of defense is embattled, in the sense that it is not clear from the outset whether the individual will be able to advance or will be forced to retreat from a given level of control. Such situations ensue after a stroke or other serious health event, when rehabilitation may be possible but uncertain. These situations of embattled lines of defense push the individual to the limits of motivational self-regulation, and also confront the advising physician and those close to the individual with unprecedented challenges.

SUMMARY

The biological and societal context brings about changing opportunities and constraints for developing competence during adulthood and old age. Adults in various paths of life need to respond to these changes. Most individuals in the labor force face drastically reduced potential for growth in competence in the forth decade of their lives and, thus, need to accommodate to this change early on in adult life. In contrast, high-level professionals and peak performers may be able to develop their competencies well into midlife, needing to adjust their aspirations much later in life. For the latter group, a strategy of highly focused investment and compensatory efforts may help individuals to maintain high levels of functioning in their domains of expertise until late midlife and, in some domains, even until early old age. However, eventually, everybody needs to disengage from aspirations of maintaining levels of performance attained during one's prime. An action-phase model of developmental regulation identifies transition points in the action cycle that call for discrete and orchestrated engagements and disengagements for most effective, life-course encompassing control striving. In advanced old age, such engagements and disengagements are organized into staircase-structured lines of defense that allow the individual to make the most of his or her remaining control capacities and resources.

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PART IV

Contextual Influences

CHAPTER 15

The Role of Parents in How Children Approach Achievement

A Dynamic Process Perspective

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Central to children's development is their achievement of a variety of competencies—for example, taking responsibility for themselves, considering the feelings of others, and reading and writing. Indeed, beginning at birth, important issues of achievement arise in almost every area of children's daily life. A key question is how to enable children to approach such issues positively, so that they are successful in navigating the challenges they face over the course of development. Because parents are central figures in most children's lives, they have the potential to shape children's orientation toward achievement. Despite some arguments to the contrary (e.g., Scarr, 1992), much research indicates that parents play a role in children's development along a number of lines (for a review, see Parke & Buriel, 1998). Several diverse strands of this research provide support for the idea that parents contribute to how children tackle issues of achievement that arise as children progress through life (e.g., Frome & Eccles, 1998; Grolnick, 2003; Jacobsen, Wolfgang, & Hofman, 1994).

Our major aim in this chapter is to provide an integrated account of parents' role in children's approach to achievement—that is, what Elliot and Dweck (Chapter 1, this volume) term "competence-relevant motivation," and Eccles, Wigfield, and Schiefele (1998) term the "motivation to succeed." To this end, we highlight how parents and children jointly contribute to children's approach to achievement over the course of development, emphasizing the power of social contextual forces. Achievement is particularly salient in the school context, where children spend a large portion of their day in activities aimed at developing their academic competencies. As a consequence, most of the

research on the role of parents in how children approach achievement has been in the academic area. Given this emphasis, our focus in this chapter is on the academic area. However, the issues discussed are likely to be applicable to other areas of children's lives as well (see Elliot & Dweck, Chapter 1, this volume).

A central premise guiding this chapter is that parents enable children to approach achievement positively by aiding them in satisfying their psychological needs. Thus, in the first section, drawing from self-determination theory (Deci & Ryan, 1985, 2000), we discuss the existence of such needs and their importance to children's orientation toward achievement. In the next section, we focus on how parents facilitate children's fulfillment of their psychological needs, thereby shaping the orientation children adopt toward achievement. We delineate three modalities through which parents contribute: behavioral (i.e., parents' practices), cognitive (parents' perceptions and expectancies), and affective (i.e., the sense of relatedness between parents and children). Subsequently, drawing on dynamic process perspectives of socialization (e.g., Bronfenbrenner, 1986; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000), we make the case that parents'contribution to children's approach to achievement is embedded in an ongoing bidirectional socialization process between parents and children, which is influenced by social-contextual forces. In line with this perspective, in the third section, we outline how characteristics of children and the social context moderate parents' influence. In the fourth section, we discuss how characteristics of parents and children shape parents' ability to aid children in meeting their psychological needs. Given the theme of this book, in all the sections, we pay particular attention to matters of competence.

CHILDREN'S PSYCHOLOGICAL NEEDS

Because we view parents' contribution to children's approach to achievement as resting to a large extent on parents' facilitation of children's fulfillment of their psychological needs, we begin by discussing four such needs. Perhaps most centrally, as Elliot and Dweck highlight in their introduction (Chapter 1, this volume), individuals have an innate need to experience themselves as *competent*—that is, to feel that they are capable of successfully influencing their environment (see Deci & Ryan, 1985, 2000; Elliot, McGregor, & Thrash, 2002; White, 1959). However, a core postulate of Deci and Ryan's (1985, 2000) self-determination theory is that individuals also have an essential need to feel *autonomous*. From birth, individuals need to experience their behavior as emanating from themselves, so that they feel they are acting out of their own choice (see deCharms, 1968). Another fundamental need identified by Deci and Ryan (1985, 2000) is that of feeling *related* to others. Many investigators have emphasized the importance of feeling connected to parents in particular (see Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988). A fourth need that has not received much attention, but may be important, is that of experiencing the self as *purposeful*. It may be essential for individuals to feel that they are engaged in activities related to meaningful and valuable goals (see Ryff & Singer, 1998).

When these needs are satisfied, children may adopt a positive approach to achievement along three dimensions (see Eccles et al., 1998). First, children's fulfillment of their psychological needs may provide them with regulatory resources that enable them to decide whether they want to achieve and why (Deci & Ryan, 1985, 2000). For example, feelings of competence and autonomy may lead children to be motivated by intrinsic or autonomous reasons (e.g., enjoyment or personal investment) rather than extrinsic or controlled reasons (e.g., punishment or shame). Second, children's fulfillment of their psychological needs may contribute to their beliefs about their capacity for achievement (Deci & Ryan, 1985, 2000), reflected in children's perceptions of competence and efficacy, expectancies for performance, and sense of control. Although children's satisfaction of their competence need is likely to be most relevant, their satisfaction of other needs may also be important (e.g., when children feel connected to their parents, they may feel worthy, which may lead them to feel competent). Third, when children are able to meet their psychological needs, they may develop a variety of learning strategies, such as checking over their work for mistakes, that enhance achievement. Children's experience of themselves as purposeful, for instance, may motivate them to adopt useful learning strategies as they strive to meet goals they view as valuable.

THE ROLE OF PARENTS

We now turn to the question of how parents assist children in satisfying their psychological needs, thereby enhancing the orientation children adopt toward achievement. There are three distinct strands of research investigating parents' role in how children approach achievement; each reflects a different modality by which parents may facilitate children's fulfillment of their needs. First, much attention has been directed toward understanding the influence of parenting practices—that is, parents' actions or *behaviors*, such as involvement in children's schooling. Second, a fairly separate line of research has focused on parents' perceptions of children's competence. We refer to this as parents' *cognition*. Third, a growing body of research has explored the role of the *affective* modality of parenting. This research has focused on relatedness between parents and children along multiple dimensions.

Parental Behavior: Parents' Practices with Children

One of the most critical ways parents help children to approach achievement positively is by being involved in their lives. Parents' involvement is particularly beneficial if it includes structuring children's learning. As we highlight, *how* parents structure children's environment is of utmost important. For structure to be most beneficial, it needs to be autonomy-supportive rather than controlling. Moreover, parents' use of structure is enhanced if it centers on the process of learning rather than on attributes of children, such as their intelligence.

Involvement versus Lack of Involvement

The term "parent involvement" refers to parents' provision of important resources to their children (Grolnick & Slowiaczek, 1994). Such resources may be tangible—for example, reading with children. However, they may also include supporting children in their endeavors and taking an interest in their lives (Grolnick & Slowiaczek, 1994). Parents' involvement in children's academic lives may manifest itself in a number of ways. Parents may participate in activities at children's school (e.g., take part in conferences with teachers and attend school events), work on schoolwork with children at home, or talk about children's school days with them. In addition, parents may take part in learning experiences, such as talking about current events and going to museums, with children. Parents may also convey their interest in more affective ways, such as showing excitement about children's successes and keeping abreast of what is going on at school.

For several reasons, parents' involvement in children's lives has the potential to enhance how children approach achievement. First, it may assist children in building skills that facilitate their feelings of competence. Second, parents' involvement may also establish a sense of relatedness between parents and children, because it indicates that parents are invested in children, thereby fostering closeness between parents and children (Grolnick & Slowiaczek, 1994). Third, parents' involvement may support children in experiencing themselves as purposeful, because it communicates to children that they are engaged in valuable activities.

Most of the research on parents' involvement in children's schooling has focused on its role in children's academic performance. Using a variety of methods, this research suggests that parents' involvement enhances children's studying, as well as their performance. For example, using teachers' and parents' reports of parental involvement, Epstein (1983) found that elementary school children whose parents are highly involved in their schooling (e.g., attending parent–teacher conferences) have better homework habits and complete more homework than do their counterparts whose parents are not highly involved. Such enhanced effort appears to have positive consequences for children's performance: Stevenson and Baker (1987) showed that during the elementary school and junior high school years, children of parents whom teachers report as highly involved in children's schooling receive high

grades. Indeed, much research indicates that parents' interest and participation in school, as reported by children, parents, teachers, and principals, are associated with heightened achievement among elementary and junior high school children (e.g., Grolnick & Ryan, 1989; Grolnick & Slowiaczek, 1994; Herman & Ye, 1983).

It is now clear that parents' involvement is actually a precursor of children's enhanced achievement. Several longitudinal studies using a variety of methods indicate that when parents are involved in children's school lives, children's academic performance benefits over time (e.g., Keith et al., 1993; Pomerantz & Eaton, 2001; Senechal & LeFevre, 2002; Steinberg, Lamborn, Dornbusch, & Darling, 1992). For example, in a three-year study of elementary school children, Izzo, Weissberg, Kasprow, and Fendrich (1999) showed that parents' involvement in children's academic lives both at home and at school (as reported by teachers) predicts enhanced classroom behavior and school performance among children 2 years later, even when children's initial classroom behavior and school performance are taken into account. Such positive effects extend into the adolescent years: When mothers are involved in children's academic lives before children make the transition from elementary school to junior high school, children are less likely to experience a decrease in their reading grades over the transition, adjusting for their grades prior to the transition (Grolnick, Kurowski, Dunlap, & Hevey, 2000).

The positive effects of parents' involvement on children's achievement appear to be due, in part, to children's feelings of competence. Several studies have linked parents' involvement to enhanced perceptions of competence and control among children. For example, involved parents are more likely than their uninvolved counterparts to have elementary school children who perceive themselves as competent in school (Grolnick & Ryan, 1989). Analogous effects have been documented in longitudinal research examining the transition from elementary school to junior high school (Grolnick et al., 2000). In a direct test of whether the feelings of competence fostered by parents' involvement underlie children's enhanced achievement, Grolnick and Slowiaczek (1994) showed that parents' involvement in their elementary school children's lives is linked to children's school performance through children feeling competent and in control of their school outcomes.

Structure versus Lack of Structure

Once parents are involved in children's schooling, it is important that they create an environment that supports children's competence through information, guidelines, expectations, and feedback. Grolnick and colleagues (e.g., Grolnick, 2003; Grolnick, Deci, & Ryan, 1997) have referred to this dimension of parenting as the degree to which parents provide structure. Parents' use of structure involves providing assistance in a manner that facilitates children's acquisition of skills. This notion of structure is inherent in the idea of scaffolding (see Wood, 1980). Parents' scaffolding involves varying the amount of information they provide about a task according to children's capabilities, and working within the range of difficulty at which children cannot do the task alone, but can do it with support and assistance. When parents' provision of structure is optimally challenging for children, children will naturally use it to increase their skills and to internalize regulations as part of the intrinsically motivated growth process, thereby fulfilling their need to feel competent, autonomous, and related.

In line with this analysis, parents' provision of structure appears to have positive effects on how children approach achievement. For example, Grolnick and Ryan (1989) assessed structure by asking parents of elementary school children about their use of guidelines, limit setting, and rules, as well as their consistency in following through on them. Children of parents who provided high levels of structure reported more knowledge of the sources of control of their performance in school than did their counterparts whose parents were lower on this dimension. Similarly, observational research shows that parents' heightened use of structure in terms of scaffolding and contingent shifting (i.e., decreasing assistance when children are successful, and increasing it when children have difficulty) is associated with heightened engagement and performance among children as young as 3 years of age (Hokoda & Fincham, 1995; Pratt, Kerig, Cowan, & Cowan, 1988; Winsler, Diaz, McCarty, Atencio, & Chabay, 1999).

Autonomy Support versus Control

The extent to which parents' structuring of children's activities is autonomy-supportive versus controlling plays a key role in how children approach achievement (see Grolnick, 2003). Parental support of autonomy involves allowing children to explore their own environment, initiate their own behavior, and take an active role in solving their own problems. Parents may support children's autonomy by attending to children's work, while allowing them to work on their own; they may also encourage them to generate their own strategies for solving challenges. Controlling behavior, in contrast, involves the exertion of pressure by parents to channel children toward particular outcomes, such as doing well in school. Parents often exert pressure by regulating children's behavior with commands, directives, instructions, orders, love withdrawal, and restrictions, thereby inhibiting children from solving problems on their own.

When parents are autonomy-supportive rather than controlling they enable children to approach achievement positively. The most common explanation given for the beneficial effects of autonomy-supportive rather than controlling parenting is that it supports children's feelings of autonomy by allowing them to take initiative (e.g., Grolnick, Gurland, DeCourcey, & Jacob, 2002; Pomerantz & Ruble, 1998). However, such parenting may also aid children in feeling competent. When parents are autonomy-supportive rather than controlling, they provide children with the experience of solving challenges on their own, which may foster feelings of competence (e.g., Ng, Kenney-Benson, & Pomerantz, 2004; Nolen-Hoeksema, Wolfson, Mumme, & Guskin, 1995; Pomerantz & Ruble, 1998).

The effects of parents' support of autonomy versus controlling behavior begin early in life. Several studies indicate that, prior to the school years, children of parents who are autonomy-supportive rather than controlling are particularly engaged in mastering their environments (e.g., Kelley, Brownell, & Campbell, 2000). For example, using observational methods, Frodi, Bridges, and Grolnick (1985) showed that 1-year-olds with autonomy-supportive mothers were more mastery-oriented during play 8 months later than were their counterparts with controlling mothers. These initial effects of parents' autonomy support and control are likely to set the stage as children enter school. Indeed, research using a variety of methods suggests that once children enter school, parents' efforts to be autonomy-supportive rather than controlling foster intrinsic motivation and mastery-oriented behavior (e.g., d'Ailly, 2003; Deci, Driver, Hotchkiss, Robbins, & Wilson, 1993; Ginsburg & Bronstein, 1993; Grolnick & Ryan, 1989; Gurland & Grolnick, 2004; Kenney-Benson & Pomerantz, in press; Nolen-Hoeksema et al., 1995).

Parents' autonomy support and control are also important to children's perceptions of competence. A number of studies employing diverse methods show a positive association between parents' autonomy-support and children's perceptions of academic competence during the elementary school years (e.g., Grolnick & Ryan, 1989; Grolnick, Ryan, & Deci, 1991; Wagner & Phillips, 1992). However, such a link is not always evident (e.g., Grolnick & Ryan, 1989; Wagner & Phillips, 1992). It is possible that this may be because children feel competent when their parents are not autonomy-supportive but are involved in their lives and provide them with structure. However, in such circumstances, children's feelings of competence may not be accompanied by feelings of autonomy (i.e., one can feel like a competent pawn). In line with this idea, children's feelings of competence are most positive when parents are high on involvement, structure, and autonomy support. For example, in longitudinal research, adolescents who saw their parents as authoritative (a combination of high involvement, high structure, and high autonomy support) viewed themselves as more competent than did adolescents who saw their parents as authoritarian (a combination of low involvement, high structure, and high control) (e.g., Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994).

The enhanced approach to achievement fostered in children by their parents' autonomy-support appears to contribute positively to children's achievement. A number of studies, using a variety of methods, pro-

vide evidence for an association between parents' autonomy support and enhanced grades during elementary school (e.g., Grolnick & Ryan, 1989; Ng et al., 2004) and junior high school (e.g., Steinberg, Elmen, & Mounts, 1989). For example, mothers' controlling behavior, particularly appeals to authority, with their 4-year-old children is associated with children not only demonstrating poor school readiness 1 or 2 years later, but also doing poorly in school 8 years later (Hess & McDevitt, 1984). It appears that children's orientation toward achievement underlies the relation between parents' autonomy support versus control and children's achievement. For example, Steinberg and colleagues (1989) showed that adolescents' heightened psychosocial maturity (e.g., positive orientation toward school) mediates the tendency for adolescents' perceptions of their parents as autonomy-supportive to predict an increase in their grades over time (see also Grolnick et al., 1991).

Process versus Person Focus

Another important dimension of parents' practices is whether they are process- versus person-focused. Process-focused practices emphasize the importance of effort and learning (Gottfried, Fleming, & Gottfried, 1994; Kamins & Dweck, 1999; Mueller & Dweck, 1998). Such practices include, but are not limited to, parents responding to children's success by acknowledging their hard work, reacting to children's frustration by emphasizing the learning process, reminding children that what is important is not their actual grades but how hard they are trying, and helping children to develop useful strategies that will enhance their learning. In contrast, person-focused practices emphasize the importance of stable attributes, such as intelligence (Gottfried et al., 1994; Kamins & Dweck, 1999; Mueller & Dweck, 1998). Parents using person-focused practices may respond to children's success by praising their intelligence, highlighting their disappointment when children do not get good grades, linking children's worth to their performance, and pushing children to achieve a good end product, with little attention to the process of doing so.

When parents are process- rather than person-focused, they may foster feelings of competence among children. Because parents' use of process-focused practices emphasizes the importance of effort and learning, children may come to view ability as something malleable, which may be improved by effort, and thus as under their control (see Kamins & Dweck, 1999; Mueller & Dweck, 1998). Such practices may also lead children to attribute their performance to hard work; consequently, failure may signal to them not that they lack competence, but that they need to exert more effort (see Kamins & Dweck, 1999; Mueller & Dweck, 1998). In contrast, when parents are person-focused, they may communicate to children that ability is a stable entity over which children have little control. Moreover, parents' use of person-focused practices may lead children to see their performance as a reflection of their ability; hence, children may attribute their failure to a lack of competence.

Dweck and colleagues have examined process- and person-focused practices by manipulating the type of feedback children are given by a previously unknown adult. For example, Mueller and Dweck (1998) gave elementary school children either process-focused praise (i.e., "You must have worked hard at these problems") or person-focused praise (e.g., "You must be smart at these problems"). Children given process-focused praise were more likely to view ability as malleable, to adopt mastery over performance goals, and to attribute their failure to effort instead of ability than were children given person-focused praise. Children given process-focused praise also persisted to a greater extent, expressed more positive affect, and performed better in the face of failure. Similarly, when preschool children imagined their teachers giving them process-oriented criticism (i.e., "Maybe you could think of another way to do it"), they were less likely than their counterparts imagining person-oriented criticism (e.g., "I am very disappointed in you") to draw negative conclusions about their abilities from their failure, to experience negative affect, and to give up (Kamins & Dweck, 1999).

The effects of parents' use of process- and person-focused practices are quite similar to the effects documented in the laboratory. Using observational methods in the context of a laboratory task with mothers and their elementary school children, Hokoda and Fincham (1995) found that mothers who reacted to children's performance-oriented behavior (e.g., concentrating on how much time is left) with process-focused practices ("That's OK; you did your best") were particularly likely to have mastery-oriented children (see also Gottfried et al., 1994). Other research, in which mothers reported daily on their responses to their elementary school children's academic successes, indicates that when mothers use person-focused rather than process-focused praise, 6 months later, children view ability as a stable entity that cannot be changed and they avoid challenging tasks (Kempner & Pomerantz, 2003). However, Kelley and colleagues (2000) found no evidence of negative effects of mothers' use of person-focused praise in the laboratory on 2-year-olds' mastery motivation. This may be because children at this young age do not yet have a mature understanding of ability and effort (see Dweck, 2002).

Parental Cognition: Parents' Thinking about Children

Although what parents do appears to play a key role in how children approach school, the way parents think also appears to be important. In this section, we focus on two central aspects of parents' thinking. The first is how parents perceive children's competence, which may also be manifest in the expectations parents have for children. Parents may be interpreters of objective information, such as grades and achievement test scores (see Eccles, 1993). As such, parents may help to determine whether children's need to feel competent is satisfied. Second, the value that parents place on children's schooling, particularly on children's academic success, may contribute to how children approach school by facilitating a sense of purposefulness, as well as competence, in children.

Perceptions of Children's Competence and Expectations for Children's Performance

Research beginning as early as the 1950s links parents' heightened expectations and aspirations for children's educational performance with heightened self-esteem, motivation, and achievement among children (e.g., Amato & Ochiltree, 1986; Marjoribanks, 1988; Rosen & D'Andrade, 1959; Winterbottom, 1958). More recently, a wealth of research provides evidence for an association between parents' perceptions of children's competence and children's own perceptions of their competence (e.g., Alexander & Entwisle, 1988; Jodl, Michael, Malanchuk, Eccles, & Sameroff, 2001). Parents' positive perceptions of children's competence, by highlighting children's competence to them, may aid children in satisfying their need to feel competent.

Given that parents' perceptions of children's competence are largely influenced by children's actual achievement, most compelling are studies that take into account children's achievement. For example, Parsons (now Eccles), Adler, and Kaczala (1982) found that children of parents who expect them to do well at math, and view math as easy for them, perceive their competence in math positively, have high expectations for their future performance in math, and see math as easy (see also Jodl et al., 2001). Notably, in this study, parents' perceptions were stronger predictors of children's perceptions than was children's past performance. In fact, in longitudinal research, Frome and Eccles (1998) demonstrated that the associations over time between children's grades in English and math, and their perceptions of competence and difficulty in these areas, are accounted for by parents' perceptions of children's competence in these areas (see also Phillips, 1987). It is noteworthy that children's perceptions of competence are predicted more strongly by parents' perceptions than by teachers' perceptions (Entwisle, 1997; Wigfield, Eccles, Yoon, & Harold, 1997). Parents' perceptions of children's competence also play a role in children's subsequent achievement. For example, one longitudinal study showed that parents' perceptions of children's competence predicted children's achievement over 9 months, even after taking into account children's achievement at the beginning of the study (Halle, Kurtz-Costes, & Mahoney, 1997).

The valence of parents' perceptions of children's competence is clearly significant. However, the accuracy of parents' perceptions appears to be influential as well, particularly as children get older. When parents are accurate in their perceptions of children's competence, they may facilitate the fulfillment of the need to feel competent

even among children who do poorly in school, because they are able to provide scaffolding attuned to children's skills. Although parents generally overestimate children's abilities (Pezdek, Berry, & Renno, 2002), the more accurate parents' views of children's academic competence, the better children perform in school (Miller, Manhal, & Mee, 1991). Accuracy becomes a more important factor as children's achievement trajectories become more established: The association between the congruence of parents and teachers' views of children's competence and children's achievement increases over the elementary school years (Peet, Powell, & O'Donnel, 1997).

Research is just beginning to address the mechanisms through which parents' perceptions of children's competence exert their influence on children. There is some indication that such perceptions are associated with parents' practices. For example, parents with high expectations are often very involved in children's schooling (Juang & Silbereisen, 2002). Moreover, parents' perceptions of children's competence may affect the conversations parents and children have about children's achievement (Flannagan, 1997). However, most investigators conclude that there are more subtle and indirect ways that parents' messages find their way into children's belief systems (see Jodl et al., 2001). For example, it is possible that parents' perceptions of children's competence underlie the types of attributions parents make for children's performance. In a laboratory study conducted by Hokoda and Fincham (1995), such attributions were linked to how children respond to failure. These investigators found that when mothers attribute children's failures to lack of ability, children are helpless in coping with failure.

Parents' Values

The extent to which parents value children's schooling also appears to contribute to how children approach school. When parents place importance on children's education, they convey that doing well in school is a valuable endeavor and provide children with a sense of purpose. The few studies examining the extent to which parents value children's schooling suggest that parents who see children's academic success as important may enhance how children approach school. When parents place heightened importance on their elementary school and junior high school children's schooling, children are more confident about their academic competencies (e.g., Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Eccles, 1983). However, work by McGrath and Repetti (2000) suggests that these effects may depend on the sex of the parent and child. McGrath and Repetti found that girls, but not boys, felt particularly competent (independent of actual performance) when fathers valued academic success. The value that mothers placed on children's academic success was unrelated to how competent either girls or boys felt. McGrath and Repetti speculate that, given the tendency in our culture to expect less from girls, girls particularly benefit when their fathers stress their academic success. The question of why fathers' value of academic success plays a larger role than that of mothers needs further attention.

Parental Affect: Relatedness between Parents and Children

Because the relationships between parents and children are often the most central ones in children's lives, even in adolescence, when increasing time is spent with peers (see Larson, Richards, Moneta, Holmbeck, & Duckett, 1996; Offer & Offer, 1975), feeling connected to parents is pivotal to children's development (e.g., Allen, Marsh, McFarland, McElhaney, & Land, 2002; Ryan, Stiller, & Lynch, 1994; Sroufe, Fox, & Pancake, 1983). When children feel connected to their parents, they may fulfill their need for not only relatedness but also competence, autonomy, and purposefulness. In this section, we focus on three distinct, albeit related, forms of relatedness between parents and children that appear to influence how children approach achievement: feelings of attachment and closeness between children and their parents, children's sense of obligation to their families, and children's inclusion of their relationships with their parents in their views of themselves (i.e., the extent to which children see their relationships with their parents as an important part of who they are).

Attachment and Closeness

The quality of children's attachment to their parents is a basic form of relatedness that plays a role very early in children's lives in setting the stage for how they approach achievement. Ainsworth et al. (1978) and Bowlby (1988) argue that the quality of children's attachment to parents during infancy contributes to children's constructive exploration of their environment. According to these investigators, children with secure attachments to their parents develop positive internal representations of themselves and others that allow them to explore their environment in a confident, autonomous manner, in part, because they do not have to worry over their relationships with their parents. In essence, fulfilling children's need for relatedness enables children's needs for competence and autonomy to be met. In contrast, children with insecure attachments to their parents develop negative representations of themselves and others that inhibit them from exploring their environment. This may be particularly true for children with insecure attachments, who are anxious about the availability and consistency of their parents.

The role of children's attachment to their parents in their approach to achievement begins early in life. Several studies using observational methods indicate that securely attached infants are more engaged with their environment than are insecurely attached infants, particularly those with preoccupied or disorganized attachment relationships. Children securely attached to their mothers during the second year of life are more enthusiastic, persistent, and competent in the context of problem-solving tasks administered 6–8 months later than are insecurely attached children (Frodi et al., 1985; Matas, Arend, & Sroufe, 1978). In addition, children categorized as securely attached at 18 months are more curious by 4–5 years of age than are their insecurely attached counterparts categorized as preoccupied (Arend, Gove, & Sroufe, 1979).

These effects appear to extend into the elementary school years. Moss and St. Laurent (2001) showed that securely attached young elementary school children were more likely than their insecurely attached counterparts to report taking a mastery-oriented approach to school 2 years later. Moreover, research using a variety of methods indicates that children who are securely attached to their mothers during the early elementary school years are more likely than their insecurely attached counterparts to be engaged in school (e.g., participate in classroom discussions), to have advanced cognitive skills, and to receive high grades not only later in elementary school but also in adolescence (e.g., Jacobsen & Hofman, 1997; Jacobsen et al., 1994). Such effects are accounted for, in part, by securely attached children's heightened feelings of competence (Jacobsen et al., 1994).

As children progress through later life, the quality of their attachment to their parents may be reflected in their feelings of closeness to them. These feelings have effects quite similar to children's earlier attachment. For example, Furrer and Skinner (2003) found that elementary school children's feelings of closeness to their parents predicted heightened engagement in school, as assessed by children's and teachers' reports, over the course of the academic year. During the adolescent years, children who report feeling close to their parents along several dimensions report being both engaged in school and autonomously motivated; they also feel they are in control of their school outcomes and use self-regulated learning strategies (Learner & Kruger, 1997; Ryan et al., 1994). Moreover, in line with the idea that children's preoccupation with their relationships with their parents disrupts how they approach achievement, research using college students' reports of their parents' practices indicates that students' perceptions of their mothers as using love withdrawal is associated with heightened avoidance of failure in school among students (Elliot & Thrash, 2004).

Family Obligation

Other forms of relatedness between parents and children may enhance how children approach achievement by heightening their feelings of purposefulness. Fuligni and colleagues (e.g., Fuligni, 2001; Fuligni, Tseng, & Lam, 1999) have focused on the extent to which children feel obligated to their family. Children's obligation to their family may take three interrelated forms. First, children

may feel obligated to provide assistance with household tasks and spend time with their family. Second, children may place importance on respecting and following the wishes of other family members, particularly those of their parents. Third, children may feel obligated to provide support for their families in the future. Although children of Asian and Latino descent are more likely to feel obligated to their family than are children of European descent, even children of European descent report such feelings (Fuligni et al., 1999). When children feel obligated to their family along any of these dimensions, they may feel that it is their duty to achieve the competencies their parents value, giving them a sense of purpose in life (see Fuligni, Alvarez, Bachman, & Ruble, in press). As a consequence, these children may be highly committed to achieving in the academic area—an area on which parents often place much importance.

In line with this idea, adolescents with a heightened sense of obligation to their family report spending much time studying and have very high educational aspirations and expectations (Fuligni et al., 1999). They also place more value on doing well in school than their counterparts who do not feel obligated to their family (Fuligni, 2001). However, although many adolescents with a strong sense of family obligation are more persistent in pursuing higher education than are their counterparts without such a sense of obligation (Fuligni, Yip, & Tseng, 2002), these adolescents do not necessarily earn better grades in school (Fuligni et al., 1999). This may be because, as early as elementary school, children who feel obligated to their family are both intrinsically and extrinsically motivated to do well in school (Fuligni et al., in press); although their intrinsic motivation may enhance their effort and even their emotional well-being, their extrinsic motivation may interfere with their concentration, leading to less productive effort.

Relationships with Parents as Self-Defining

A wealth of theory and research has been concerned with understanding interdependent conceptions of the self, in which the self is viewed as part of an encompassing network of social relationships (for a review, see Markus & Kitayama, 1991). For individuals with interdependent representations of themselves, the self becomes particularly meaningful when it is cast in relation to others. Such individuals define themselves in terms of their relationships with others. Although individuals from Eastern cultures, such as China, are more likely than those from Western cultures, such as the United States, to hold interdependent self-construals, there is considerable variation within cultures in terms of how individuals view themselves (e.g., Cross & Madson, 1997).

Drawing from the theory and research on interdependent self-construals, Wang and Pomerantz (2004) examined the extent to which children define themselves in terms of their relationships with their *parents*. These investigators reasoned that children's inclusion of their relationships with their parents in their views of themselves heightens their motivation to maintain their relationships with their parents, which may increase children's responsiveness to their parents' socialization attempts. Children holding parent-oriented interdependent self-construals may attempt to put themselves in their parents' place, taking on the thoughts and feelings of their parents (see Markus & Kitayama, 1991). As a consequence, such children may be highly invested in meeting the goals set for them by their parents, eventually internalizing them, which may heighten their feelings of autonomy. Because many parents place value on children's achievement in the academic area, children's inclusion of their relationships with their parents in their views of themselves may enhance how they approach achievement in this area, because it allows them to experience themselves as purposeful in the school context.

Consistent with this idea, Wang and Pomerantz (2004) found that children who reported including their relationships with their parents in their views of themselves were particularly likely to report being invested in their schoolwork. Moreover, these children provided autonomous reasons for doing their schoolwork. This heightened investment and autonomous motivation accounted for the tendency of children including their relationships with their parents in their self-construals to be highly engaged in their schoolwork on a daily basis. Interestingly, although this engagement was associated with heightened emotional well-being, it was not associated with better grades in school. This may be because, much like children feeling obligated to their family, children including their relationships with their parents in their views of themselves were motivated by controlled reasons, in addition to autonomous ones, because of a concern with pleasing their parents.

Conclusions

There is substantial evidence that parents influence how children approach achievement. It appears that this takes place through three distinct, albeit related, modalities: behavioral, cognitive, and affective. The effects of each of these modalities have generally been identified in distinct lines of research. Thus, little is known about how they jointly contribute to the approach to achievement that children adopt. There are several possibilities.

The first is an interactive effect, in which the effects of one modality depend on another. In this vein, Darling and Steinberg (1993) argued that parents' general style of interacting with children creates a climate that conveys to children their parents' attitudes toward them. Consistent with this perspective, Steinberg and colleagues (1992) demonstrated that parental involvement is more beneficial for children's achievement when administered by authoritative than by authoritarian parents. In a similar vein, mothers' use of structure on a daily basis is most likely to have positive effects on how children respond to academic failure when mothers accompany it with autonomy support (Pomerantz & Ruble, 1998). Other modalities of parenting may also contribute to such a climate. For example, parents' establishment of feelings of relatedness between children and themselves may be an important aspect of climate.

The second possibility is that different modalities of parenting are important for different children. Along these lines, mothers' use of gentle discipline is particularly likely to enhance temperamentally fearful children's internalization of mothers' standards, presumably because it takes advantage of the optimal level of arousal among these children (e.g., Kochanska, 1991). Although this practice is ineffective with children who are not temperamentally fearful, it is not that mothers are unable to influence these children. Rather, the affective modality is particularly important for children who are not temperamentally fearful: These children internalize their mothers' standards when they have a secure attachment with them, regardless of their mothers' use of gentle discipline. Similar trends may be evident for the role of the different parenting modalities in how children approach achievement.

A third possibility is that the three modalities exert their effects through one another. As we noted earlier, parents' cognition may influence their behavior (see Eccles, 1993). For example, parents who perceive their children as lacking competence may be particularly controlling (see Pomerantz & Eaton, 2001). It is also possible that certain aspects of parents' behavior create a sense of relatedness between parents and children. For example, parents who are involved and autonomy-supportive may establish a secure attachment with children. Once such an attachment is established, it may elicit more positive practices from parents as they engage in a cycle of mutual responsiveness with children (see Kochanska, 1997).

MODERATORS OF THE ROLE OF PARENTS

It is clear that parents contribute to how children approach achievement. However, parents' socialization of children is not a unidirectional process by which parents simply shape children. Indeed, as suggested by dynamic perspectives of socialization (e.g., Bronfenbrenner, 1986; Collins et al., 2000), children's characteristics, as well as social-contextual forces, may influence parents' facilitation of children's fulfillment of their needs. In this section, we focus on the moderators of parents' contribution to how children approach achievement. First, we discuss how children's characteristics influence the effects that parents have on children's approach to achievement. In this context, we focus on the influence of children's need to feel competent. Second, we consider social context as a moderator. Here, attention is directed to the culture in which children and parents reside.

Child Characteristics: The Need to Feel Competent

Across a number of areas of development, investigators have adopted parent × child models of socialization, in which the effects of parents' practices depend on children's characteristics (e.g., Bates, Pettit, Dodge, & Ridge, 1998; Kochanska, 1993). Research is beginning to suggest that such models are important to understanding parents' role in how children approach achievement. Because parents may contribute to children's orientation toward achievement by aiding children in satisfying their needs to feel competent, autonomous, related, and purposeful, the extent to which children have already fulfilled these needs may moderate parents' contribution. Parents' influence may be strongest among children who do not experience themselves as competent, autonomous, related, or purposeful. In line with the theme of this book, we focus on the moderating role of children's feelings of competence.

As a consequence of a variety of influences (e.g., peer socialization, achievement, and temperament), children come to their interactions with their parents with established perceptions of their competence. Children who experience themselves as incompetent may benefit more than do children who experience themselves as competent when their parents use practices, such as autonomy support, that have the potential to promote feelings of competence. However, children experiencing themselves as lacking competence may be particularly vulnerable when their parents use practices, such as control, that have the potential to detract from feelings of competence. Children with negative perceptions of their competence may be more easily frustrated than are their counterparts with positive perceptions, which may lead them to have more difficulty achieving competence. Parents may be particularly important in providing such children with the skills and opportunities that reduce their frustration, thereby allowing them to experience themselves as competent and, ultimately, to be successful. In essence, because children with negative perceptions of their competence are in greater need than are children with positive perceptions of the competence-related resources that parents can provide, they are more sensitive to their parents' practices bearing on their competence.

The findings of several longitudinal studies using a variety of methods are consistent with this proposal. Low-achieving children are more likely than high-achieving children to benefit when their mothers use autonomy support (Ng et al., 2004). Low-achieving children, for instance, experience greater increments over time in their subsequent performance than do high-achieving children, when their mothers provide support by allowing them to work on their own in the context of a challenging task, and when their mothers respond to their failures with discussion. A similar pattern exists for parents' use of process-focused practices (Pomerantz, Ng, & Wang, 2004b): When mothers are process-oriented in assisting their children with homework, children with negative perceptions of their academic competence are more likely than children with positive perceptions to benefit in terms of their subsequent perceptions of competence, mastery orientation, and positive emotional functioning. Unfortunately, low-achieving children are more likely than high-achieving children to suffer when their mothers use control (Ng et al., 2004; Pomerantz, 2001). For example, when mothers are controlling in the context of assisting children with a challenging task, over time, low-achieving children become less engaged in the task than do high-achieving children. Moreover, when mothers respond to children's failures in a controlling manner, that is, with punishment or reprimands, the performance of low-achieving children suffers more than that of high-achieving children.

Social-Contextual Characteristics: Cultural Influences

As Bronfrenbrenner (1986) has highlighted, interactions between parents and children take place in a larger social context that not only influences the course these interactions take but also their impact on children. Because of the tendency for children of Asian descent living both inside and outside the United States, to outperform academically their European American counterparts, there has been much attention devoted to understanding how the role of parents in children's academic achievement differs between the two cultures. Although a key focus has been on understanding similarities and differences in the types of practices used by parents' in the two cultures (e.g., C. Chen & Stevenson, 1989), there has been an increasing focus on how the effects on children of parents' use of the *same* practices differ across the two cultures. Children from different cultures may experience the same practices differently, so that the same practices have different functional significance for children from different cultures.

Children of Asian and European cultural heritage may experience their parents' practices differently, in part, because of differences in their views of themselves: Children of Asian descent may include their relationships with others, including their parents, in their views of themselves more than do children of European descent. As a consequence, children from Asian cultures may often take on their parents' goals as their own. This may influence their experience of parents' practices. Children from Asia may not see their parents' practices (e.g., making unilateral decisions for children) as controlling, as they are often seen by children from the United States, which allows them to experience the pursuit of their parents' goals as an autonomous process (see Iyengar & Lepper, 1999). Findings from research manipulating parents' use of control and examining the effects on children's motivation are consistent with this perspective: Iyengar and Lepper (1999) either allowed elementary school children to choose a task on which to work or told them that their mother had chosen one for them. European American children showed more interest in the task that they themselves chose over the one that they were told was chosen for them by their mothers. However, Asian American children preferred the task that they were told was chosen for them by their mothers.

Research comparing the effects of parents' actual use of control in Asia and the United States has generally focused on children's achievement rather than on how they approach achievement. In such research, authoritative parenting tends to have more positive effects than does authoritarian parenting on children of Asian descent (e.g., X. Chen, Dong, & Zhou, 1997), but these effects are often, albeit not always, weaker than they are for children of European descent (e.g., Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Steinberg et al., 1994). Taken together, the findings suggest that the social context in which children reside influences their interpretation of their parents' practices, thereby underscoring the importance of children's understanding of the functional significance of parents' practices.

Conclusions

In accordance with dynamic perspectives of socialization, research suggests that both the characteristics children bring to their interactions with their parents, and the social context in which these interactions take place, influence the role of parents in children's approach to achievement. In terms of children's characteristics, children's experience of themselves as lacking competence heightens the effects of parents' practices that bear on children's competence. It will be key for future research to identify other characteristics of children that moderate the role of parents in how children approach achievement. As suggested earlier, one fruitful line of inquiry may focus on children's experience of themselves as autonomous, related, and purposeful. Also of import is to examine the moderating role of children's gender. Several lines of research suggest that girls are more responsiveness to parents' socialization attempts than are boys (for a review, see Pomerantz, Ng, & Wang, 2004a). As a consequence, parents may play a larger role in how girls approach achievement.

The social context in which children and parents reside also moderates the role of parents in how children approach achievement. We focused on differences in the effects of parenting in Asia and the United States. The evidence to date suggests that parents' practices differentially influence how children approach achievement in the two cultures. Children in these cultures may interpret the same practices differently. As a consequence, parental practices that by American standards might be seen as controlling may not have the same negative ef-

fects among Asian children. It will be important for future research to investigate systematically the role of cultural context by examining cultures other than Asia and the United States (e.g., García Coll et al., 2003). It is also critical to examine the moderating role of social-contextual forces within cultures. Research suggesting that the optimal level of parents' structure for children depends on the type of neighborhood in which they live (e.g., Baldwin, Baldwin, & Cole, 1990; Coley & Hoffman, 1996) represents a major stride in this direction.

ANTECEDENTS OF PARENTS' BEHAVIOR, COGNITION, AND AFFECT

Drawing again from dynamic perspectives of socialization, we now turn to the question of what shapes parents' abilities to aid children in satisfying their needs. Although a number of factors have been implicated as influencing parenting (see Belsky, 1984), we focus on those related to competence issues. First, we discuss how characteristics of parents themselves influence their ability to facilitate children's need fulfillment. In this context, we concentrate on the extent to which parents see their worth as hinging on children's achievement. Second, attention is directed to how characteristics of children influence parents' practices. Here, we focus on children's achievement.

Parental Characteristics: Ego Involvement in Children's Achievement

Much research indicates that when parents experience external pressure, such as economic hardship and stressful life events, their parenting suffers (e.g., Dodge, Petit, & Bates, 1994; Grolnick, Weiss, McKenzie, & Wrightman, 1996). However, parents may also experience pressure from within that disrupts their parenting. When individuals are ego-involved in their own performance, their feelings of worth are contingent upon their performance (Crocker & Wolfe, 2001; Nicholls, 1984; Sherif & Cantril, 1947). In other words, they feel good about themselves if they perform well, but bad about themselves if they perform poorly. Although Crocker and Wolfe (2001) have suggested that such ego involvement serves an important regulatory function (see also Pomerantz, Saxon, & Oishi, 2000), it may cause individuals to feel pressured. In line with this idea, work by Ryan (1982) finds that ego involvement is negatively associated with intrinsic motivation. Recent work has expanded the notion of ego involvement in one's own performance to ego involvement in the performance of another. Grolnick and colleagues (2002) reasoned that when parents see children's performance as having ramifications for their own worth, they transfer their experience of pressure onto children, leading them to use controlling rather than autonomy-supportive practices with children.

To test this idea, mothers and their elementary school children worked on homework-like tasks under either an ego-involving, high-pressure condition, in which mothers were led to believe they were responsible for children meeting particular performance standards, or a low-pressure condition deempahsizing children's performance and mothers' responsibility. Mothers under high pressure were more controlling with children than those under low pressure, with mothers who endorsed the use of control being particularly vulnerable to the effects of pressure. Eaton and Pomerantz (2004) examined naturally occurring differences among parents in the extent to which they feel their worth is contingent on children's performance. Similar to the experimental study conducted by Grolnick and colleagues (2002), both mothers and fathers who felt that their worth was contingent on children's performance were more likely to be controlling with children in college, even when children were doing well in school.

Child Characteristics: Achievement

A number of investigators have argued that parenting is determined in part by children's characteristics (e.g., Bell, 1968; Scarr, 1992). In this vein, there is evidence that parents are more likely to become involved in their children's school lives, particularly in terms of assisting them with their homework, when children are having difficulty in school. Several concurrent investigations reveal that parents are more likely to assist children with homework when children are doing poorly in school (e.g., C. Chen & Stevenson, 1989). Although it is possible that this association reflects the negative effects of parents' assistance, research conducted by Pomerantz and Eaton (2001) indicates that this is unlikely. In this research, children's poor performance in school predicted mothers' heightened assistance with homework 6 months later. Mothers apparently increased their assistance with low-achieving children, because they were worried over such children's performance, and they picked up on their children's cues indicating that they felt uncertain about how to do well in school. Indeed, mothers are particularly likely to assist children with homework on the days that they perceive children as helpless in the context of doing their homework (Pomerantz, Wang, & Ng, in press). Importantly, once children's initial achievement is taken into account, mothers' assistance with homework predicts an increase in children's achievement over time (Pomerantz & Eaton, 2001).

Children are also important. Children's achievement in school appears to influence parents' practices. Other characteristics of children have also been documented as important—for example, children's gender (e.g., Frome & Eccles, 1998; Pomerantz & Ruble, 1998). It is also of note that parents and children interact in a social context that influences what parents do. For example, research indicates that the culture in which parents and children reside determines not only how children respond to their parents' practices but also how parents parent (e.g., C. Chen & Stevenson, 1989). An important direction for future research will be to integrate these multiple influences in understanding the process by which parents contribute to how children approach the achievement of competence.

Conclusions

The question of what shapes parents' abilities to facilitate children's fulfillment of their needs is important in determining which parents may benefit from help in assisting children to approach achievement positively. However, this question is also critical to understanding the dynamic nature of the process by which parents contribute to children's orientation toward achievement. It is clear that parents play a major role, but it is also clear that children influence this role. The orientation children adopt toward achievement emerges from an ongoing bidirectional socialization process between parents and children. We focused here on how the pressure that parents themselves experience undermines their ability to aid children in satisfying their needs. Other characteristics of parents are also important. For example, parents' personalities (e.g., Clark, Kochanska, & Ready, 2000), feelings of efficacy (e.g., Grolnick, Benjet, Kurowski, & Apostoleris, 1997; Hoover-Dempsey, Bassler, & Brissie, 1992), and educational attainment (Stevenson & Newman, 1986) all appear to influence parenting.

CONCLUSIONS

Research conducted over the last two decades has established that parents play a central role in how children approach achievement. Critical aspects of parents' behavior, cognition, and affect have been implicated as influential. As a whole, parents have the potential to facilitate children's fulfillment of their psychological needs through multiple modalities, thereby providing children with the resources necessary to approach achievement positively. As investigators continue to study parents' contribution to children's approach to achievement, it will be important to draw on dynamic perspectives of socialization. The initial research conducted from this perspective already reveals that the role of parents is embedded in an ongoing, bidirectional socialization process between parents and children, which is influenced by social-contextual forces.

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PEERS

CHAPTER 16

Peer Relationships, Motivation, and Academic Performance at School

KATHRYN R. WENTZEL

Relationships with peers are of central importance to children throughout childhood and adolescence. They provide a source of companionship and entertainment, help in solving problems, personal validation and emotional support, and especially during adolescence, a foundation for identity development (Brown, Mory, & Kinney, 1994; Parker & Asher, 1993). In turn, children who enjoy positive relationships with peers appear to experience levels of emotional well-being, beliefs about the self, and values for prosocial forms of behavior and social interaction that are stronger and more adaptive than do children without positive peer relationships (Rubin, Bukowski, & Parker, 1998). An additional intriguing finding is that children who enjoy positive relationships with peers also tend to be engaged in and even excel at academic tasks more than those who have peer relationship problems. Children's social competence with peers has been related positively to academic accomplishments throughout the school-age years (Wentzel, 2003).

In light of evidence that links children's adaptive functioning across social and academic domains, a central question that I address in this chapter is how students' social competence with peers might be related to academic motivation and accomplishments. Toward this end, I first provide general criteria for defining social competence that can be applied to students' peer relationships at school. This contextualized focus reflects the fact that children's peer relationships are understood primarily within the context of the school; rarely have researchers looked outside the classroom walls to examine the nature of peer relationships and their correlates. Next, I review the literature on social competence with peers and ways in which social competence might be related to outcomes in the academic domain. Finally, I offer thoughts and provocations for future research.

DEFINING SOCIAL COMPETENCE WITH PEERS

How and why might students' relationships with peers be related to their academic motivation and accomplishments? Is it some aspect of the relationship itself that motivates academic accomplishments or, do social competencies that lead to social approval and acceptance among peers also contribute positively to academic functioning? One approach to answering these questions is to consider first the nature of social competence and how students' relationships with each other reflect a critical component of their social adaptation to school. Toward this end, I begin this section by presenting a definition of "social competence" derived from theoretical perspectives on person–environment fit and personal goal setting. This definition is then applied to the realm of schooling and students' relationships with peers. In this regard, I describe social, as well as academic, correlates of students' competence with peers.

Perspectives on Social Competence

In the social-developmental literature, social competence has been described from a variety of perspectives ranging from the development of individual skills to more general adaptation within a particular setting. In these discussions, social competence frequently is associated with person-level outcomes such as effective behavioral repertoires (Argyle, 1981), social problem-solving skills (Spivack & Shure, 1982), positive beliefs about the self (Bandura, 1986), achievement of social goals (Ford, 1992), and positive interpersonal relationships (Rubin et al., 1998). In addition, central to many definitions of social competence is the notion that contextual affordances and constraints contribute to and mold the development of these individual outcomes in ways that enable them to support the social good (Barker, 1961; Bronfenbrenner, 1989). Social contexts are believed to play an integral role in providing opportunities for healthy social development, as well as in defining the appropriate parameters of social accomplishments. In this chapter, therefore, social competence reflects this balance between the achievement of positive outcomes for the self and adherence to context-specific expectations for behavior.

Social Competence as Person–Environment Fit

Support for this perspective on social competence can be found in the work of several theorists (e.g., Bronfenbrenner, 1989; Ford, 1992). Bronfenbrenner (1989) argues that competence can only be understood in terms of context-specific effectiveness, being a product of personal attributes such as goals, values, self-regulatory skills, and cognitive abilities, and of ways in which these attributes contribute to meeting situational requirements and demands. Bronfenbrenner further suggests that competence is facilitated by contextual supports that provide opportunities for the growth and development of these personal attributes, as well as for learning what is expected by the social group. Ford (1992) expands on this notion of person–environment fit by specifying four dimensions of competence that reflect personal as well as context-specific criteria: the achievement of personal goals; the achievement of goals that are situationally relevant; the use of appropriate means to achieve these goals; and the accomplishment of goals that result in positive developmental outcomes for the individual.

The application of this perspective on social competence to the realm of schooling results in a multifaceted description of children who are socially competent and well-adjusted. First, socially competent students achieve goals that are personally valued, as well as those that are sanctioned by others. Second, the goals they pursue result in both social integration and positive developmental outcomes for the student. Socially integrative outcomes are those that promote the smooth functioning of social groups at school (e.g., cooperative behavior) and are reflected in levels of social approval and social acceptance; student-related outcomes reflect healthy development of the self (e.g., perceived social competence, feelings of self-determination) and feelings of emotional well-being (Bronfenbrenner, 1989; Ford, 1992). From this description it follows that social competence is achieved to the extent

that students accomplish goals that have both personal and social value in a manner that supports continued psychological and emotional well-being. In addition, the ability to be socially competent is contingent on opportunities and affordances of the school context that allow students to pursue multiple social goals.

Social Competence as the Achievement of Social Goals

A goal-based definition of social competence reflects a basic tenet of motivational theories that people set goals for themselves, and that these goals can be powerful motivators of behavior (Austin & Vancouver, 1996; Bandura, 1986; Dweck, 1991). Goal-directed behavior in social domains historically has been viewed as an aspect of competence rather than a type of motivation to achieve mastery of specific outcomes (e.g., Dodge, Asher, & Parkhurst, 1989; Ford, 1985). However, there are similarities between perspectives that describe goal-directed behavior in social and academic domains. First, goal setting is central to theorizing in both social and academic domains (Austin & Vancouver, 1996). In general, theorists define both social and achievement-related goals as cognitive representations of desired future outcomes (e.g., Austin & Vancouver, 1996; Dweck, 1991), although specific definitions of social goals vary to include affiliative needs (McClelland, 1987), reasons for social behavior (Erdley & Asher, 1996), and desires to achieve specific social outcomes (Wentzel, 2002).

In this chapter, I define students' "social goals" with regard to their content, or the social outcomes that students wish to achieve at school. Researchers who focus on the content of students' goals typically examine the frequency of efforts to pursue specific school-related outcomes, and the relation of these efforts to social and academic competencies (e.g., Ford, 1992; Wentzel, 1991a, 1991b, 1993). The content of classroom goals might be task-related, such as mastering subject matter or meeting a specific standard of performance or proficiency, or more cognitive, such as engaging in creative thinking or satisfying intellectual curiosity or challenge. Of concern for this discussion are social goals, such as establishing personal relationships with teachers and peers, gaining approval from others, or behaving cooperatively and responsibly with classmates.

As with task- or academically related outcomes, the achievement of social goals often is evaluated on the basis of standards. However, social standards are rarely discussed in terms of some sort of social excellence. Rather, evaluations of "success" typically are based on a combined judgement of personal satisfaction with and positive social reactions to specific social outcomes. Achieving an acceptable discrepancy between these two sets of evaluations is the hallmark of social competence and is achieved not just by one person's efforts but often as the result of compromise or conflict resolution among two or more individuals.

Finally, social goal pursuit typically is considered within the context of other self-processes that support goal pursuit. Similar to relations identified within the domain of academic motivation, beliefs about ability, personal values, attributions for success and failure, and other social cognitive and affective regulatory processes have been related to positive social outcomes. For instance, beliefs about social competence and efficacy have been related to a range of social outcomes, including helping (Ladd & Oden, 1979), control of aggression (Erdley & Asher, 1996), peer acceptance (Hymel, Bowker, & Woody, 1993), and social assertiveness (Kazdin, 1979). Similarly, attributional styles have been related to a range of social outcomes, including aggression (Hudley & Graham, 1993), peer rejection (Goetz & Dweck, 1980), and help giving (Weiner, 1980). In addition, a specific set of social information-processing and self-regulatory skills have been identified as necessary antecedents of social competence, including the ability to read and process social cues (Crick & Dodge, 1994), social perspective-taking skills (Spivack & Shure, 1982), and interpersonal trust (Rotenberg, 1991).

Summary

"Social competence" is defined in this chapter as the achievement of context-specific social goals that result in positive outcomes

not only for the self but also for others. Therefore, a full appreciation of how and why students thrive or fail to thrive at school requires an understanding of a student's social goals, including both those that are personally valued and those that contribute to the stability and smooth functioning of interactions and relationships with others. This definition, however, suggests an additional set of questions: Which goals result in the formation and maintenance of positive relationships with peers at school? How do peers define social competence for each other? Interestingly, much is known about the social standards and expectations that teachers hold for their students (Wentzel, 2003). Indeed, teachers are the primary architects of classroom contexts and of ways in which students can achieve social goals. In contrast, little is known about the goals that students expect each other to achieve, and that lead to social approval among peers. However, it is reasonable to assume that characteristics of students who are well-liked and accepted by their peers also are those that reflect outcomes that are valued by peers and likely to result in peer acceptance and approval. In the following section, student characteristics related to positive relationships with peers are described.

Social Competence with Peers at School

By definition, social competence with peers reflects not only the achievement of personal goals but also those that are valued by the peer group and contribute to positive peer relationships. Therefore, one strategy for understanding the nature of social competence with peers is to identify social characteristics and outcomes related to peer approval and acceptance. Establishing positive relationships with peers can take many forms, ranging from general acceptance or preference by the peer group to involvement in reciprocated friendships. Therefore, identifying the correlates of peer acceptance and approval is not a simple task. However, researchers typically have defined children's involvement in peer relationships in three specific ways: degree of peer acceptance or rejection by the larger peer group, peer group membership, and dyadic friendships. Each of these aspects of peer relationships and their correlates is described in the following sections.

Correlates of Peer Preference and Sociometric Popularity and Rejection

Assessments of peer acceptance and rejection always are based on information obtained from the peer group at large rather than from the individual. In this manner, unilateral assessments of a child's relative standing or reputation within the peer group are used to create a continuum of social preference scores ranging from well-accepted to rejected (e.g., "How much do you like this person?"), or categories of individual students that reflect sociometric status groups (i.e., popular, rejected, neglected, controversial, and average-status children). Although rarely acknowledged as a factor contributing to peer acceptance or rejection, the school and classroom setting has almost always been the context within which peer preference and sociometric status are studied.

Of primary interest for this discussion are sociometrically rejected children, those who are infrequently nominated as someone's best friend and are actively disliked by their peers, and sociometrically popular children, those who are frequently nominated as a best friend and rarely disliked by their peers. A substantial number of studies have yielded consistent findings concerning these groups of children. In general, when compared to average-status peers (i.e., students with scores that do not fall into these statistically defined groups), popular students are more cooperative, helpful, and sociable, demonstrate better leadership skills, and are more self-assertive. In contrast, rejected students tend to be less compliant, less self-assured, less sociable, and more aggressive, disruptive, and withdrawn than their average-status peers (Newcomb, Bukowski, & Pattee, 1993; Rubin et al., 1998; Wentzel & Asher, 1995).

The relevance of the school context for understanding social competence with peers is reflected in consistent findings relating popular status and social acceptance to successful academic performance, and rejected status and low levels of acceptance to academic difficulties (e.g., Austin & Draper, 1984; Buhs & Ladd, 2001; Wentzel, 1991a). Results are most consistent with respect to classroom grades (Buhs & Ladd, 2001; Hatzichristou & Hopf, 1996; Wentzel, 1991a), although peer acceptance has been related positively to standardized test scores (Austin & Draper, 1984), as well as to IQ (Wentzel, 1991a). These findings are robust for elementary-age children, as well as adolescents, and longitudinal studies document the stability of relations between peer acceptance and academic accomplishments over time (e.g., Ladd & Burgess, 2001; Wentzel & Caldwell, 1997).

Correlates of Peer Group Membership

Students also enjoy relationships within peer groups or crowds. In contrast to peer status or preference, group membership is typically assessed by identifying clusters of friends who form a group (see Kindermann, McCollam, & Gibson, 1996), or by asking students to report who actually hangs out in groups with each other (Brown, 1989). Typical adolescent crowds include "Populars," students who engage in positive forms of academic, as well as social behavior, but also in some delinquent activities; "Jocks," students characterized by athletic accomplishments but also relatively frequent alcohol use; more alienated groups (e.g., "Druggies") characterized by poor academic performance and engagement in delinquent and other illicit activities; and "Normals," who tend to be fairly average students who do not engage in delinquent activities. Research on peer group membership has been mostly descriptive, identifying the central norms and values that uniquely characterize various adolescent school-based groups and crowds (e.g., Brown, 1989). Therefore, in contrast to work on sociometric status, there is not a one-to-one correspondence between enjoying high status and being described in a positive light. To illustrate, in contrast to sociometrically popular students, who are typically characterized in positive terms, members of "Popular" crowds are often described by their peers as having undesirable characteristics, such as being dominant and exclusionary, as well as lacking positive prosocial skills (Parkhurst & Hopmeyer, 1998).

As with research on peer acceptance, studies of peer group membership also have focused on academic values and characteristics. For example, ethnographic studies by Brown and his colleagues (Brown, 1989; Brown, Mounts, Lamborn, & Steinberg, 1993; Stone & Brown, 1999) describe adolescents as characterizing certain crowds in terms of academic standing. "Brains," or students who get high grades, typically enjoy average status in crowd hierarchies, although they are viewed as somewhat disengaged from peer activities. The social status of this crowd also appears to have a developmental trajectory, with Brains' crowd status being highest during middle school and the end of high school, and lowest at the beginning of high school (see Stone & Brown, 1999). Of additional interest, however, is that members of the Popular crowd, who enjoy high status, also are typically characterized as being good students (Brown et al., 1993).

Finally, researchers who identify friendship-based peer groups using statistical procedures also have found relations between group membership and academic performance (Kurdek & Sinclair, 2000; Wentzel & Caldwell, 1997), as well as academic engagement (Kindermann, 1993). Peer group membership in middle school also has been related to changes in the degree to which students perform academically (Ryan, 2001). However, although most of these studies have followed students over time, few have documented long-term relations between group membership and academic performance (e.g., Wentzel & Caldwell, 1997).

Correlates of Friendship

Finally, peer relationships are studied with respect to dyadic friendships. In this case, students are asked to nominate their best friends at school; nominations are then matched to determine reciprocity, or best friendships. An important distinction between friendships and peer group membership is that friendships reflect relatively private, egalitarian relationships, often formed on the basis of idiosyncratic criteria. In contrast, peer groups are characterized by publicly acknowledged and, therefore, fairly consistent characteristics that are valued by the group (Brown, 1989).

Friendships have been described most often with respect to their functions (Furman, 1989) and their qualities (Parker & Asher, 1993). However, simply having a friend at

school appears to be related to a range of positive outcomes. Children with friends tend to be more sociable, cooperative, and self-confident compared to their peers without friends (Newcomb & Bagwell, 1995; Wentzel, Barry, & Caldwell, 2004). Children with reciprocated friendships also tend to be more independent, emotionally supportive, altruistic, and less aggressive than those who do not have such friendships (Aboud & Mendelson, 1996; Wentzel et al., 2004). In addition, adolescents report they are satisfied with friends if they are self-disclosing, initiate activities, can manage and resolve conflict, and are emotionally supportive (Aboud & Mendelson, 1996). Research on friendship formation also suggests that personal attributes, such as the ability to engage in responsive communication, to exchange information, to establish common ground, to self-disclose, to extend and elaborate the activities of others, and to resolve conflict (Gottman, 1983), are characteristics that appear to be necessary to develop and maintain positive friendships.

Similar to other types of peer relationships, having friends also has been related positively to grades and test scores in elementary and middle school (Berndt & Keefe, 1995; Wentzel & Caldwell, 1997; Wentzel et al., 2004). Students with friends also tend to be more involved and engaged in school-related activities than those who do not have reciprocated friendships (Berndt & Keefe, 1995; Berndt, Laychak, & Park, 1990; Ladd, 1990; Ladd & Price, 1987).

Summary and Conclusions

The picture of peer-defined social competence that emerges from the literature on sociometric status and friendships is one of frequent displays of prosocial behavior (e.g., helping, sharing, caring), relatively infrequent displays of antisocial and disruptive behavior, and some modicum of academic success. Many of these characteristics also are endorsed by adolescent peer groups, although less predictably. Several issues concerning the nature of social competence with peers, however, remain unresolved.

Perhaps the most glaring omission in the literature on children's competence with peers is definitions of competence obtained directly from students themselves. Indeed, the correlates of interest to researchers (and therefore, those that are assessed) reflect competencies valued by adults. Limited evidence indicates that students do have common beliefs concerning what they need to be like and how they should behave in order to be accepted by peers. Wentzel and Erdley (1993) found that the vast majority of adolescents in their study believed that showing respect for others, being sociable, and "being yourself" would result in making friends, whereas antisocial behavior, such as physical or verbal aggression, dishonesty, and delinquency, would not. Others have documented characteristics such as physical appearance, athletic abilities, and humor as student-generated correlates of peer acceptance (Rubin et al., 1998). In large part, however, little is yet understood about peer cultures, and what students themselves value and expect of each other in order to gain approval. The complexity of this undertaking is reflected in findings that personal attributes and behavior valued by students also tend to differ as a function of gender, as well as race (Benenson, Apostoleris, & Parnass, 1998; Graham, Taylor, & Hudley, 1998).

Of additional importance is that most researchers who study the correlates of peer interactions and relationships have not considered the role of various qualities and characteristics of peer involvement. For instance, friendships and groups to which students belong differ with respect to stability, status and roles of the individual members of the group or relationship, the degree to which friendships and group membership overlap with other friendships or groups, or overall quality of experiences with the group or friendship (see Newcomb & Bagwell, 1996). In addition, although adolescents are quick to identify school-related groups, they are loath to admit membership in any one group themselves (Matyanowski, 2001). Therefore, much work is still needed to resolve issues concerning how to define and assess various aspects of peer involvement before we can truly understand the role of peers' social demands and expectations in defining socially valued goals for students.

Finally, defining and judging competence from the sole perspective of what the peer environment demands tells us little about what individual students value and the goals they expect to achieve vis-à-vis their peers.

Indeed, the importance of considering the goals that students pursue as an additional component of social competence lies in the fact that pursuit of personal goals can lead to peer acceptance for many reasons. For instance, peer acceptance might be a personally valued outcome in and of itself, and as such, be the primary reason for engaging in peer-valued behavior. In this case, social competence could be assumed if a student's goal to achieve peer acceptance is met. At a more sophisticated level, a student might view demonstrations of specific behaviors and peer acceptance as multiple and interrelated goals, and utilize goal coordination skills to achieve both. If peer values changed, this student would be likely to alter behavior in a way that both sets of goals could still be achieved.

In addition, however, a student might have goals to engage in certain types of behavior irrespective of the fact that they might also be valued by peers. For this student, social competence would reflect a more complex set of outcomes, with peer acceptance being a positive social consequence of goal pursuit but not necessarily an achievement of a personal goal. Over time, peer-related competence might decline if peer values for behavior change. Finally, a student might pursue goals to gain social approval for ulterior motives; acceptance from peers might be pursued in order to enhance feelings of self-worth or to avoid punishment or peer retribution rather than because it holds personal value. In this case, it is possible that peer acceptance could be achieved without personal goals being met. According to the definition adopted for this chapter, this student would not be socially competent if maladaptive outcomes for the self such as social anxieties or fears remain despite social success with peers.

In short, determinations of social competence with peers cannot be made without consideration of students' own personal goals. With respect to peers, students can have goals to gain peer acceptance; they can pursue multiple goals that reflect positive outcomes for themselves, as well as their peers; they might have goals to engage in behaviors that are valued by peers even if peer acceptance is not an important goal to achieve; and they can pursue goals to be socially accepted for ulterior motives. The outcomes of these various scenarios can have qualitatively different implications for healthy and adaptive functioning. It is clear, however, that peers can play a powerful role in defining socially valued outcomes at school by rewarding specific behaviors and personal characteristics with social acceptance and approval. Moreover, most students want to be accepted by their peers and are likely to behave in ways that will result in positive relationships with their classmates.

What is perhaps least clear in this literature is the role of academic accomplishments in defining social competence with peers. In the case of social preference, and sociometric status especially, there is overwhelming evidence of a positive relation between social acceptance and academic accomplishments. Why this relation exists, however, is not well understood. In the next section, therefore, I discuss models of influence that specify how peer relationships, as well as other social competencies related to peer acceptance and approval, might be related to students' academic pursuits and achievements at school.

RELATING SOCIAL COMPETENCE WITH PEERS TO ACADEMIC MOTIVATION AND ACCOMPLISHMENTS

The literature on peer relationships identifies academic accomplishments as a significant, positive correlate of peer acceptance and approval. Why then, might social competence with peers influence or even be related to academic outcomes? At the simplest level, it is possible that competence with peers and academic accomplishments are correlated but not causally related outcomes. Similarly, peer-related competence might not influence academic accomplishments, but functioning in the two domains might be linked by way of behavioral styles or self-regulatory processes that contribute to positive outcomes in each. Assuming that a causal relation does exist, it is reasonable to speculate that academic achievements can lead to social acceptance if they are valued by the peer group. In contrast, it also is feasible that social competence with peers leads to academic accomplishments, either because interactions with

peers facilitate intellectual development (Piaget, 1932/1965, 1983), or because social or cultural norms communicated by peers define the nature of task competence (Vygotsky, 1978). Finally, in line with the definition of "social competence" adopted for this chapter, peer relationships might serve as contextual affordances that support the pursuit of students' personal goals, including those in the academic domain. Each of these possibilities is considered in the following sections.

Correlated but Not Causally Related Domains

Lacking direct evidence of causal influence, it is reasonable to assume that social competence with peers is simply correlated to academic competencies, without any direction of effects. Indeed, positive correlations could reflect reputational biases rather than causal influence. To illustrate, some middle school students attribute positive academic characteristics to sociometrically popular peers but not to other students who also are high achievers but not as well-liked (Wentzel, 1991a; Wentzel & Asher, 1995). This is in contrast to information from teachers, which does not always identify sociometrically popular students as the best students relative to other classmates (Wentzel & Asher, 1995). Therefore, positive correlations between peer acceptance and academic accomplishments might simply reflect a halo effect that leads students to evaluate well-liked classmates positively in both academic and social domains.

Although it is possible that these relations are psychologically meaningless, a more likely explanation is that a third set of factors contributes to competence in both domains. These factors could reflect specific types of social behavior, as well as psychological or emotional processes that support both positive peer relationships and academic excellence. A large body of evidence supports the notion that certain types of social behavior related to peer acceptance also are related to academic accomplishments. Specifically, displays of prosocial behavior, such as helping, sharing, and cooperating, and restraint from disruptive and antisocial forms of behavior in the classroom that have been related consistently and positively to peer acceptance and approval also are strongly and positively related to intellectual accomplishments, including grades, test scores, and IQ (see Wentzel, 2003, for a review). In further support of this notion, positive forms of classroom participation, such as prosocial and socially responsible behavior, have been found to mediate relations between sociometric status and academic accomplishments in early childhood, as well as during early adolescence (Buhs & Ladd, 2001; Wentzel, 1991a); when these positive forms of behavior are taken into account, significant relations between peer acceptance and academic outcomes become nonsignificant.

A role for positive classroom behavior in mediating relations between peer relationships and academic outcomes is supported by several explanations. Just as prosocial and socially responsible forms of behavior contribute to successful relationships with peers, they also contribute to positive relationships with teachers. Not surprisingly, teachers report social preference and approval for students who cooperate, share, and follow rules (Wentzel, 1991b, 2003). Therefore, it is possible that students are rewarded by teachers for their positive behavior with high grades. It also is likely that displays of positive behavior and a lack of disruptive behavior in the classroom creates an instructional climate conducive to effective teaching and learning of academic material. In this way, social behavior can contribute directly to learning and task mastery, as well as to social approval and acceptance.

Although studied less often, metacognitive and self-regulatory processes also are likely to contribute to adaptive behavior in both social and academic domains. Several theorists have posited goal-setting skills, emotion regulation, self-monitoring, attributions, and means–end thinking and other basic information-processing skills as factors that contribute to the ability to implement strategic and planful behavior in both social and academic domains (Crick & Dodge, 1994). From a motivational perspective, goal networks and hierarchies based on students' beliefs about cause–effect relations also are likely to link performance in both domains. For instance, students might try to demonstrate academic competence to gain social approval, or they might try to behave in socially acceptable ways to get help on academic tasks. Indeed, students who report frequent attempts to behave in socially desirable ways also frequently try to achieve academically (Wentzel, 1989, 1993).

Causally Related Domains

Significant relations between peer relationships and academic accomplishments also might reflect more direct causal relations between the two domains of functioning. One possibility is that, at least for some students, excelling at academic tasks results in peer approval and acceptance. In this case, academic excellence would be one criterion for establishing positive relationships with peers. As noted earlier, this direct relationship between academic accomplishments and positive peer relationships clearly exists for some students, but it is not universal across all peer groups. Another possibility is reflected in models in which positive interactions with peers contribute directly both to competence at academic tasks and to positive forms of social behavior. For example, constructivist models propose that mutual discussion, perspective taking, and conflict resolution with peers can motivate the accommodation of new and more sophisticated approaches to intellectual problem solving (e.g., Piaget, 1932/1965, 1983). Similarly, theorists have argued that peer interactions play a unique role in the development of prosocial tendencies (Youniss & Smollar, 1989b). Children construct an understanding of reciprocity and interpersonal cooperation though discourse, conflict resolution, and social comparison with peers.

An alternative perspective is that all aspects of competence are defined by social and cultural norms (Vygotsky, 1978). In this case, notions of academic excellence and competence would be derived from broader notions of what it means to be competent within the larger culture. Peer relationships would contribute directly to the development of academic skills when competent students teach strategies and standards for performance to peers who are less skilled, or when they scaffold less competent peers to help them learn and perform in culturally prescribed ways (e.g., King, Staffieri, & Adelgais, 1998).

Peer Relationships as Contextual Affordances

A final way to think about the positive relation between peer acceptance and academic accomplishments is to consider the various provisions and opportunities that peer relationships afford to individual students. Recall that definitions of "social competence" are based on notions of social reciprocity: Just as the individual must behave in ways that support and are valued by the social group, so must the social group provide support for the achievement of individual goals. How might peer relationships provide supports for students' pursuit of goals to achieve academically? Models of socialization (e.g., Grusec & Goodnow, 1994) suggest at least two general mechanisms whereby social relationships and experiences might influence goal pursuit. First, ongoing social interactions teach children about themselves and what they need to do to become accepted and competent members of their social worlds. As noted in the previous section, children are likely to develop a set of goals and related standards for behavior that they should strive to achieve within the context of interpersonal interactions with their peers.

In addition, the qualities of children's social relationships are likely to have motivational significance. Ford (1992; see also Wentzel, 2002) suggests that evaluative beliefs about social relationships and settings can play an influential role in decisions to engage in the pursuit of personal goals. Within specific situations, an individual evaluates the correspondence between his or her personal goals and those of others, the degree to which others will provide access to information and resources necessary to achieve one's goals, and the extent to which social relationships will provide an emotionally supportive environment for goal pursuit. Extending this formulation to classroom settings, students who wish to achieve academically should engage in academic activities when they perceive their involvement and relationships with their peers as providing opportunities to achieve academic goals; as being safe and responsive to their academic strivings; as facilitating the achievement of their goals by providing help, advice, and instruction; and as being emo-

tionally supportive and nurturing. In this manner, students' motivation to achieve academic goals should serve to mediate between opportunities afforded by positive relationships with peers and academic accomplishments.

In support of this model is empirical evidence that enjoying positive relationships with peers is related to various aspects of academic motivation. For instance, sociometrically popular students report more satisfaction with school, more frequent pursuit of goals to learn (Wentzel, 1991a, 1994; Wentzel & Asher, 1995), and stronger perceived academic competence (Hymel et al., 1993) than their socially rejected classmates. In contrast, peer rejection has been related to low levels of interest in school (Wentzel & Asher, 1995) and disengaging altogether by dropping out (Parker & Asher, 1987). In addition, Kindermann (1993; Kindermann et al., 1996) reports that elementary-age students tend to self-select into groups of peers that have motivational orientations to school similar to their own. Over the course of the school year, these orientations appear to become stronger and more similar within groups (see also Berndt et al., 1990; Ryan, 2001). During adolescence, dyadic friendships have been found to motivate positive academic behavior such as studying and making plans for college (e.g., Berndt et al., 1990; Epstein, 1983).

In line with Ford's (1992) proposal, ample support also exists for characterizing the opportunities provided by peers along dimensions of instrumental help, clear expectations and opportunities for goal pursuit, safety and responsivity, and emotional support. Therefore, it is reasonable to speculate that these contextual supports provided by peers can explain students' academic accomplishments, because they support the pursuit of academically related goals. In the following sections, I review evidence suggesting that these peer-related supports can promote academic accomplishments by motivating students to engage in positive academic activities.

Providing Expectations and Opportunities

As noted earlier, social contexts can influence goal pursuit if there is correspondence between one's personal goals and those of others. Therefore, a central question concerning students' pursuit of academically related goals is whether students express values and expectations concerning academic accomplishments to each other. Although not well documented, it is reasonable to assume that students communicate to each other values and expectations concerning academic achievement, and provide opportunities for each other that will allow their expression (e.g., Altermatt, Pomerantz, Ruble, Frey, & Greulich, 2002). It is clear, however, that as students advance through their middle school and high school years, the degree to which their goals and values support positive academic accomplishments can become fairly attenuated. In spite of these developmental trends, some adolescent students do report that their classmates expect them to behave appropriately and perform well academically at school. For instance, approximately 70% of adolescents from three predominantly middle-class middle schools reported that their peers expected them to be cooperative and helpful in class either *sometimes* or *always*, and approximately 80% reported similar peer values for academic learning (Wentzel, Looney, & Battle, 2003). Moreover, these perceptions did not appear to differ as a function of grade level. Therefore, it is reasonable to expect that, at least in some schools, peers actively promote the pursuit of positive academic, as well as social, outcomes.

Other evidence suggests that perceived expectations of peers for specific kinds of behavior might play a central role in students' own determination of why it is important to behave in those ways. Specifically, students who perceive relatively high expectations for academic learning and engagement from their peers also report that they pursue goals to learn for internalized reasons (or because its important) rather than because they believe they will get in trouble or lose social approval if they do not (Wentzel & Filisitti, 2003). Peers clearly have the potential to provide the most proximal input concerning whether engaging in a task is important, fun, or interesting. Therefore, peers who model a sense of importance or enjoyment with regard to task engagement are likely to lead others to form similar attitudes toward the task (Bandura, 1986). This is especially likely to occur when students are friends: Students have the opportunity to observe a friend's behavior with greater frequency than a nonfriend's behavior (Crockett, Losoff, & Petersen, 1984), and friendships typically are characterized by strong emotional bonds, thereby increasing the likelihood that friends will imitate each other's behavior (Berndt & Perry, 1986).

Providing Help, Advice, and Instruction

Enjoying positive relationships with peers also can lead directly to resources and information that help students learn. By virtue of the fact that they are socially accepted, it is reasonable to assume that students who get along with their peers will also have access to peer resources that can promote the development of social and academic competencies. These resources can take the form of information and advice, modeled behavior, or specific experiences that facilitate learning. Teachers play the central pedagogical function of transmitting knowledge and training students in academic subject areas. However, students provide each other with valuable resources necessary to accomplish academic tasks (Sieber, 1979). Students frequently clarify and interpret their teacher's instructions concerning what they should be doing and how they should do it, provide mutual assistance in the form of volunteering substantive information and answering questions (Cooper, Ayers-Lopez, & Marquis, 1982), and share various supplies such as pencils and paper.

Classmates also provide each other with important information about themselves by modeling academic competencies (Schunk, 1987), and by comparing work and grades (Butler, 1995; Guay, Boivin, & Hodges, 1999). Such information is likely to influence beliefs concerning their own levels of academic efficacy. Indeed, Altermatt et al. (2002) documented the role of students' evaluative discourse with peers in changing perceptions of academic efficacy over time. Experimental work also has shown that peers serve as powerful models that influence the development of academic self-efficacy (e.g., Schunk, 1987). In turn, students' efficacy beliefs are likely to be a primary motivator of goals to achieve academically (Bandura, 1986).

Providing a Safe and Responsive Environment

Students who are accepted by their peers and who have established friendships with classmates also are more likely to enjoy a relatively safe school environment and less likely to be the targets of peer-directed violence and harassment than their peers who do not have friends (Hodges, Boivin, Vitaro, & Bukowski, 1999; Pelligrini, Bartini & Brooks, 1999; Schwartz et al., 2000). This safety net that friends appear to provide for each other is critical, in that peer-directed violence and harassment is a fairly pervasive problem in American schools and can have an enormous negative impact on students' social and emotional functioning (Elliott, Hamburg, & Williams, 1998; Snyder, Brooker, Patrick, Schrepferman, & Stoolmiller, 2003). National surveys indicate that large numbers of students are the target of classmate aggression and take active measures to avoid being harmed physically, as well as psychologically, by peers (National Center for Educational Statistics, 1995).

The general effects of peer harassment on student motivation and school-related competence has not been studied frequently. However, threats to physical safety can have a significant impact on students' emotional functioning at school (Buhs & Ladd, 2001; Elliott et al., 1998). Students who are frequently victimized tend to report higher levels of distress and depression than those who are not routinely victimized (e.g., Boivin & Hymel, 1997; Kochenderfer-Ladd & Waldrop, 2001; Olweus, 1993; Snyder et al., 2003). In turn, other studies have linked psychological distress and depression to interest in school (Wentzel, Weinberger, Ford, & Feldman, 1990) and negative attitudes toward academic achievement (Dubow & Tisak, 1989), as well as academic performance (Wentzel et al., 1990), and ineffective cognitive functioning (Jacobsen, Edelstein, & Hofmann, 1994). Therefore, students' affective functioning appears to mediate the effects of the quality of peer relationships and especially of peer harassment on academic outcomes (Juvonen, Nishina, & Graham, 2000; Wentzel, 1998; Wentzel & Caldwell, 1997; Wentzel & McNamara, 1999).

Providing Emotional Support

In conjunction with providing safe and responsive contexts, peer relationships also have the potential to create a climate of emotional support for students. During adolescence, students report that their peer groups and crowds provide them with a sense of emotional security and a sense of belonging (Brown, Eicher, & Petrie, 1986). In contrast, children without friends, or those who are socially rejected, are often lonely, emotionally distressed and depressed, and suffer from poor self-concepts (Wentzel & Caldwell, 1997; Wentzel et al., 2003). The positive academic effects of emotional support from peers are well documented. Students who perceive that their peers support and care about them also tend to be more engaged in positive aspects of classroom life than are students who do not perceive such support. Perceived support from peers has been associated positively with students' interest in academic pursuits (e.g., Wentzel, 1998; Wentzel et al., 2003). Similarly, young adolescents who do not perceive their relationships with peers as positive and supportive also tend to be at risk for academic problems (e.g., Goodenow, 1993; Wentzel, 1998).

Summary

Why might social competence with peers be related to academic accomplishments? I have argued that multiple models of influence are plausible: Significant relations might be due to additional behavioral styles of self-regulatory processes that contribute to both social and academic outcomes; academic accomplishments might lead to peer acceptance and approval; positive interactions with peers might contribute to the development of intellectual skills; and peer relationships might serve as social contexts that support students' academic goal pursuits and subsequent accomplishments. It is likely that each of these models can partly explain significant relations between positive peer relationships and academic outcomes. In line with the definition of social competence presented in this chapter, the literature also supports the proposal that peers are likely to influence students' adoption and pursuit of academic goals if four basic conditions are met: Clear expectations and opportunities for goal pursuit are communicated by their peers; instrumental help is available from classmates; the peer context is safe and responsive; and emotional support is provided by peers.

Although empirical evidence of the joint contribution of these peer provisions to students' classroom goals has been reported (Wentzel et al., 2003), what it is that develops or is changed on the part of students as a result of these provisions remains unanswered. One area for consideration is the influence of peer provisions on self-regulatory processes that support academic goal pursuit. For example, in a study of middle school and high school students, peer social support, instrumental help, and values explained significant amounts of variance in students' pursuit of academic goals to learn (Wentzel, Battle, & Looney, 2001). Of additional interest is that social support and instrumental help from peers remained significant predictors of efforts to learn when demographic, parenting, and teacher variables were taken into account. However, these peer provisions became nonsignificant predictors when students' academic self-processes (i.e., efficacy for learning, control beliefs, and reasons for learning) were entered into the regression equation. Therefore, although academic motivation in the form of goal pursuit is a likely mediator between peer provisions and students' academic accomplishments, other processes that regulate goal pursuit might be the more proximal targets of peer influence.

In addition to examining further the role of academic self-processes as mediators between provisions of peer relationships and academic goal pursuit, it would be fruitful to focus on other social self-processes that also are likely to influence the degree to which peer contexts orient students toward academic activities. Aspects of social-cognitive processing, such as selective attention, attributions, and social biases and stereotypes, can influence students' interpretations of peer communications, as well as peer reactions to students' behavior (Price & Dodge, 1989). Other individual characteristics, such as attachment security and family functioning (e.g., Fuligni, Eccles, Barber, & Clements, 2001), racial identity (Graham et al., 1998), and the extent that students are

oriented toward gaining social approval, are also likely to influence the degree to which they are susceptible to peer influence.

The contribution of different types of peer involvement to academic outcomes also remains a relatively unexplored area of research. On the one hand, friends are believed to play a central role in providing contexts for self-expression, validation, and affirmation (Hartup & Stevens, 1997). Having friends appears to mediate the negative effects of harsh and punitive home environments on children's relations with the broader peer group (Schwartz et al., 2000), and being without friends predicts less than optimal levels of emotional well-being (e.g., Parker & Asher, 1993; Wenz-Gross, Siperstein, Untch, & Widaman, 1997). In addition, friends appear to elicit behavior that would not necessarily be displayed under other circumstances. For example, when children are with friends, they engage in more positive interactions, resolve more conflicts, and accomplish tasks with greater proficiency than when they are with nonfriends (Newcomb & Bagwell, 1995). Children also typically display more affect and emotional intensity with friends than with nonfriends (Parker & Gottman, 1989), and children are more successful at making transitions when friends accompany them (Ladd, 1990; Ladd & Price, 1987). In contrast, friends are believed to play a relatively minor role in socializing each other with respect to larger group norms and expectations (Hartup & Stevens, 1997). If so, the role of friendships in defining and supporting academic competence should be minimal.

On the other hand, adolescent peer groups and crowds are believed to facilitate the formation of identity and self-concept (Brown et al., 1994), and to structure the nature of ongoing social interactions within and across groups (Cairns, Xie, & Leung, 1998). In both of these roles, peer groups and crowds are likely to provide students with values, norms, and interaction styles that are commonly valued and sanctioned; valued behavior is modeled frequently, so that it can be easily learned and adopted by group members (Brown et al., 1994). Ecological perspectives (Bronfenbrenner, 1989; Cairns et al., 1998) also call attention to the roles of peer groups and crowds as intermediaries between the individual and broader peer and adult communities. For these reasons, it is likely that peer groups and crowds can play a central role in contributing to students' academic values and accomplishments.

A final question that remains unanswered is whether peers exert a unique influence on students' academic accomplishments when adult socialization processes are considered. The notion that peers can serve as potentially powerful motivators of academic engagement is generally supported in the empirical literature. However, few studies of peer interactions and relationships have taken into account the equally powerful influence of teachers and other adults in defining and promoting students' social and academic competencies. The results of our studies (Wentzel & Filisitti, 2003; Wentzel et al., 2001, 2003) suggest that aspects of students' relationships with peers do predict students' pursuit of academic goals even when certain aspects of teacher and parent influences are taken into account. One explanation for these findings is that peer relationships have a unique influence on students' academic goal pursuit by way of students' emotional well-being. Indeed, in contrast to a growing body of work relating perceived support from peers and students' affective functioning, significant relations between perceived support from teachers and students' levels of emotional distress have not been forthcoming (Wentzel, 1997, 1998; Wentzel & Filisitti, 2003).

An intriguing conclusion based on these findings is that perceptions of social and emotional support from peers are likely to be a critical factor that contributes to students' overall sense of emotional well-being at school, especially during adolescence. Assigning this unique role to peers, however, assumes that all students value peer support, and that peer rejection or lack of friends will automatically lead to emotional distress. In fact, some children are likely to be more adult-oriented than others and thrive despite a lack of close friends. A study of middle school students without friends (Wentzel & Asher, 1995) supports this notion, in that students who had few friends and were neither well-liked or disliked by their peers (sociometrically neglected children), were the most well-liked by their teachers, the

most highly motivated students, and were equally self-confident compared to their average-status peers. In a longitudinal study, Wentzel (1998) found that these children remained academically and socially well-adjusted over the course of the middle school years. Whether these findings reflect a disinterest in the peer group and, therefore, a lack of emotional investment in peer relationships, or a dependence on adults for emotional support, remains a question for future research. However, it is likely that peers have little potential to influence some students.

CONCLUSIONS

This chapter began by posing the question of how social competence with peers might be related to academic motivation and accomplishments within the classroom context. I have argued that social competence with peers reflects the degree to which students are able to meet the social expectations of the peer group, as well as pursue their own personal goals; the achievement of these dual sets of goals is reflected in the psychological and emotional well-being of the student, as well as the smooth functioning of peer relationships and interactions. I also have described several pathways whereby students' relationships with peers might be related to academic accomplishments. The bulk of evidence supports a model in which clear expectations and opportunities for academic goal pursuit, instrumental help, safety and responsivity, and emotional support represent provisions of positive peer relationships that support students' pursuit of academic goals and subsequent actual achievements.

Much work, however, remains to be done. At the most general level, we need to address the possible ways in which children, and the various social systems in which they develop, jointly create definitions of social, as well as academic, competence (see Bronfenbrenner, 1989). Similarly, ways in which characteristics of the home, neighborhoods, and schools interact with peer relationships both in and out of school to influence children's functioning must be considered (e.g., Ge, Brody, Conger, Simmons, & Murry, 2002; Pettit, Bates, Dodge, & Meece, 1999). In this regard, researchers need to identify ways in which students learn to coordinate their own social and academic goals with those prompted by others. Issues concerning cause and effect also necessitate continued focus on underlying psychological processes and skills that promote the development and display of competent outcomes.

Investigations of socially valued goals and expectations also must be conducted within a developmental framework, taking into account the age-related interests and capabilities of the child. From a developmental perspective, the role of peers in motivating academic accomplishments is likely to be especially critical during the middle school and high school years. Although children are interested in and even emotionally attached to their peers at all ages, they exhibit increased interest in their peers, spend more time with them, and exhibit a growing psychological and emotional dependence on them for support and guidance as they make the transition into adolescence (Youniss & Smollar, 1989a). Moreover, whereas friendships are enduring aspects of children's peer relationships at all ages, peer groups and crowds emerge primarily in the middle school years, peak at the beginning of high school, and then diminish in both prevalence and influence by the end of high school (Brown, 1989). Therefore, efforts to understand the influence of peer relationships on academic motivation and outcomes must be sensitive to not only the qualities and types of relationships that students form with each other but also to developmental issues.

In short, the most basic descriptive research has just begun. However, we have gained some initial insights into students' experiences with peers as they relate to academic motivation and achievement. I hope that these insights can serve as a foundation to explore further the social and psychological antecedents and supports of academic motivation and accomplishments of all school-age children.

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CHAPTER 17

Competence Motivation in the Classroom

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Most prominent approaches to the study of motivation today involve competence in some way, whether it be the desire to become competent, to appear competent to others, to feel competent, or even to avoid feeling or appearing incompetent. In addition, most current conceptualizations of competence motivation were either created by psychologists or derived from earlier theories that were developed by psychologists (e.g., McClelland, Atkinson, White, Lewin). Pintrich (2004) recently argued that motivational science represents "use-inspired basic research" (p. 668). As such, a number of researchers have suggested that each of the various frameworks of motivation has direct implications for classroom practice despite the fact that most of these approaches were developed by psychologists and tested outside of classroom contexts. Our purpose in this chapter is to review the suggested implications for classroom practice of research from various motivational perspectives, to analyze the research evidence supporting these suggested implications, to offer a synthesis across motivational approaches of the best practices for promoting competence motivation in classrooms, to discuss some cautions that motivation researchers should attend to when trying to apply motivation principles in classrooms, and to suggest future directions for research.

DISTINGUISHING COMPETENCE MOTIVATION FROM OTHER CLASSROOM APPROACHES TO MOTIVATION

Competence motivation is distinct from other motivational theories and perspectives that have been examined and applied in the classroom. By definition, *competence motivation* involves a concern with mastery. The motive, or the impetus for action in a specific direction, is to develop, to attain, or to demonstrate competence. Although the fundamental objective of education is to create competence, a number of efforts to enhance student motivation in classrooms have not focused on competence motivation per se. For example, efforts to enhance students' self-esteem were primarily focused on increasing student motivation, but competence

was not the central feature of these efforts. Similarly, token economies and other tangible reward systems are adopted to enhance motivation, but the motivation is often for behaving well, completing classwork, and being punctual rather than for developing competence. There has also been a considerable amount of attention paid to social motivators in schools and classrooms (Coleman, 1961; Ryan, 2001). Research in classrooms has revealed that student engagement and willingness to exert effort on academic tasks can be enhanced by social motives, such as the desire to work with friends and peers (Ryan, 2001), to please parents (Fuligni, 1997), and to please the teacher (Wentzel, 1999). In addition, research has shown that other social factors, such as perceptions of the teachers' social support (Wentzel, 1999), are positively associated with motivation in the classroom. Although none of these social variables and motives represents competence motivation, they may affect competence motivation indirectly by encouraging students to develop and then demonstrate academic competence to parents, peers, or teachers.

Because this volume is devoted to a consideration of competence motivation, we thought it important to define competence motivation in the classroom by distinguishing it from other forms of motivation. In addition, we wanted to foreshadow an argument that we present later in the chapter: A full understanding of the nature of competence motivation *in classrooms* may need to consider additional motivational factors, including the affordances and demands specific to classrooms, and the highly social nature of classroom interactions. We now turn our attention to a consideration of several prominent theories of competence motivation and the suggested implications of each for classroom practice.

OVERVIEW OF MOTIVATIONAL RESEARCH AND SUGGESTED CLASSROOM APPLICATIONS

In this section, we examine the stated implications for classroom practice of several prominent social cognitive conceptualizations of motivation (achievement goals, interest and intrinsic motivation, self-efficacy, expectancy–value theory, self-determination theory, and attribution theory) as they relate to competence, and review the empirical support for these stated implications. We should note that our attention is limited to research conducted in K–12 settings. Although there has been research conducted in college classrooms (e.g., Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000), it is not clear whether the results of that research generalize to K–12 settings for a variety of reasons. First, college attendance is voluntary whereas most K–12 attendance is coerced. Coercion has serious implications for competence motivation, particularly for theories that include intrinsic motivation. Second, college students, on average, are higher achieving than K–12 students. As such, these students generally fare well in situations involving comparisons of ability and academic competition, which may have implications for the generalizability of results involving the benefits of performance–approach goals (Midgley, Kaplan, & Middleton, 2001). In addition, college students are more likely to be in large classes that involve little personal interaction with the instructor, a fact that may alter the social influences on competence motivation. For these and other reasons (i.e., college students are older, more likely to be enrolled in classes that interest them, etc.), we limit our focus to K–12 settings.

Research on Achievement Goals

Perhaps more than any of the other research programs we discuss, research on achievement goals has been conducted with an eye toward classroom application. This motivational framework posits that individuals have different purposes for engaging (or not engaging) in activities, and these purposes are called *goals or goal orientations* (Dweck, 1992; Elliot, 1997; Maehr & Midgley, 1991). Three types of achievement goals have been most extensively studied: mastery, performance–approach, and performance–avoidance. Whereas performance goals involve a concern with normative performance and appearing able (or avoiding appearing unable), mastery goals represent a concern with developing competence by developing skills and understanding new information. The personal achievement goals that students adopt in a given situation or classroom are believed to be influenced by the goal messages made salient in the achievement context (Ames, 1992). These messages create the *classroom goal structure*. Unlike research on personal goals, the published research on classroom goal structures has generally focused on performance and mastery goal structures, without distinguishing between the approach and avoidance elements (Urdan, 2004).

Stated Implications of Achievement Goal Research

Because mastery goals are more consistently associated with positive motivational and learning outcomes (e.g., increased effort, persistence, positive affect, greater use of elaborative cognitive strategies, attributions of success and failure to controllable factors), goal theorists have often argued that the mastery goal structure should be strengthened in the classroom (Ames, 1992; Maehr & Midgley, 1991; Midgley & Urdan, 1992). Goal researchers have suggested a number of strategies teachers could adopt to create stronger mastery goal structures in their classrooms. Ames (1992) suggested that teachers create academic tasks that are meaningful and personally relevant to students, evaluate students on the basis of improvement and effort rather than relative performance among students, and provide students with a sense of autonomy by giving them choices and a voice in classroom decisions whenever possible. A specific set of suggestions for creating a mastery goal structure in the classroom was offered by Midgley and Urdan (1992), and included recommendations such as making student evaluation and recognition practices as private as possible, emphasizing understanding and challenge, and using cooperative learning.

Empirical Support for the Stated Implications

Research examining classroom goal structures and their effects can be divided into three types: Active manipulations of teacher and classroom practices, survey research, and observational research, or survey-and-observation combinations. The first report of an attempt to manipulate the goals that teachers emphasized in their classrooms was by Ames (1990). In an unpublished study, Ames worked with a group of 66 elementary school teachers, 36 of whom were randomly assigned to a treatment group and 30 others who were assigned to the control group. Teachers in the treatment group implemented a series of mastery-oriented practices in an effort to create mastery goal structures in their classrooms. Students in the treatment classrooms reported no change in their learning strategy use; intrinsic motivation; attitudes toward reading, math, and school; or perceived competence and increases in self-concept of ability; whereas students in the control classrooms reported significant declines in all of these variables except for attitude toward school and self-concept of ability. The second reported goal manipulation effort was from Anderman, Maehr, and Midgley (1999). Analyzing data collected during the Coalition Project described by Maehr and Midgley (1996), they found that when students moved from the last year of elementary school (5th grade) into the treatment middle school (where efforts were under way to create a mastery goal structure), they reported a slight decrease in personal performance–approach goals, whereas students entering the control middle school reported an increase in performance–approach goals. Students moving into control and treatment schools did not differ in their own mastery goal orientations or perceptions of the mastery goal structure in their classrooms.

A number of survey studies have examined the associations between student (and sometimes teacher) reports of the goal structure in the classroom and motivational, affective, and achievement outcomes. The logic of this research has been that if student and teacher reports of the mastery and performance goal structure are related to valued outcomes, such as efficacy or self-regulation, then there is support for teacher attempts to emphasize mastery goal structures and, perhaps, deemphasize performance goal structures (see Urdan, 2004, for a review). Survey measures have typically asked students about their teachers' practices that reflect mastery goals or performance goals. Mastery goal practices include encouraging students to understand the material, viewing mistakes as part of the learn-

ing process, and recognizing students for trying hard, whereas performance goal practices include making it obvious which students in the class are doing well and encouraging students to compare their performances with each other (Midgley et al., 2000). Most of this research has revealed that when students perceive a stronger emphasis on mastery goals in the classroom, they are more likely to adopt personal mastery goal orientations (Anderman & Anderman, 1999; Urdan & Midgley, 2003). Across the transition from elementary to middle school, a decline in the perceived classroom mastery goal structure has particularly negative associations with achievement, personal mastery goal pursuit, self-efficacy, and positive affect in school (Urdan & Midgley, 2003). A perceived mastery goal structure is negatively associated with avoidance behaviors, such as avoidance of help seeking, avoidance of novelty, and self-handicapping (Turner et al., 2002). These avoidance behaviors undermine the development of competence and indicate diminished competence motivation.

A limited number of observational studies have also been conducted to identify specific instructional policies and practices that might explain differences among students in their perceptions of classroom goal structures. Meece (1991) found that teachers in classrooms containing students with relatively high personal mastery goal orientations tended to use activities with clearer procedures than did teachers in classrooms containing less mastery-oriented students. Urdan, Kneisel, and Mason (1999) found that the teacher with the most consistent messages of concern for student input and personal relevance of the material had students who perceived the most mastery goal messages in the classroom and most frequently mentioned pursuing mastery goals themselves. Anderman, Patrick, Hruda, and Linnenbrink (2002) found that teachers in classrooms in which students perceived a relatively weak classroom mastery goal structure tended to emphasize the importance of following rules and procedures more than did teachers in classrooms with a stronger perceived mastery goal structure. Turner et al. (2002) discovered that greater motivational, emotional, and social support for learning during instruction was related to students' perceptions of high mastery classrooms and their reports of low avoidance strategies. Similarly, Stipek, Givvin, Salmon, and MacGyvers (1998) found that teachers who emphasized learning, understanding, and effort, as well as positive affect, had students who reported higher mastery goals, more positive emotions, more enthusiasm, and higher conceptual scores in mathematics than students in other groups.

To summarize, achievement goal research has consistently found that a strong emphasis on mastery goals in the classroom is associated with stronger personal endorsement of mastery goals by students, more positive affect, higher achievement, greater feelings of competence, and less engagement in avoidance behaviors. Active manipulations, survey studies, and observational research have all indicated that when teachers emphasize the relevance of academic work, the importance of effort and personal growth, and are consistent in their mastery goal message, students, on average, are more likely to endorse mastery goals themselves.

Research has also revealed that an emphasis on performance goals in the classroom is related to some detrimental motivational and behavioral variables, such as greater personal performance–avoidance goal pursuit and increased use of self-handicapping (Urdan, Midgley, & Anderman, 1998). Research has often found weaker effects of classroom performance goal structures than of mastery goal structures (Urdan & Midgley, 2003), and goal researchers have more consistently emphasized the importance of strengthening mastery goal structures than of weakening performance goal structures in the classroom (e.g., Ames, 1992). Although important questions remain about how to interpret the research on classroom goal structures (Urdan, 2004), the existing evidence suggests that when teachers emphasize meaning and individual development in the classroom, students' competence motivation is enhanced.

Interest and Intrinsic Motivation

Interest is a potentially important component of competence motivation. Some have argued that human beings have an innate sense of curiosity that leads us, even from infancy, to become interested in novel, moderately challenging, dissonance-creating stimuli (White, 1959). Recent interest research has carefully distinguished between *individual* and *situational* interest (Renninger, 2000). Individual interest refers to the more stable personal disposition toward a specific topic or domain. Situational interest represents a more short-lived, situation-specific attention to a topic (Hidi & Harackiwiewicz, 2000).

Interest may be conceptualized as a component of intrinsic motivation (Hidi, 2000). Intrinsic motivation involves motivation that is free of extrinsic coercion. When intrinsically motivated, individuals engage in activities for the sake of the activity itself (Sansone & Harackiewicz, 2000). Intrinsic motivation may have a variety of sources, including needs for competence (Deci & Ryan, 1985; White, 1959), interest in the material or activity (Renninger, 2000), or perceptions of autonomy (Deci & Ryan, 1985).

Stated Implications of Interest and Intrinsic Motivation Research

Because individual interest is, by definition, idiosyncratic, it would simply be too onerous for classroom teachers to identify the individual interests of all of their students and tailor instruction to the variety of individual interests in a given classroom (Hidi & Harackiewicz, 2000). Rather, teachers should try to "catch" and then "hold" students' situational interest by manipulating the learning environment in a manner that enhances situational interest. A number of suggestions for how to do this include using humor; adding elements of fantasy and variety into the tasks; taking advantage of the social desires of students by having them work together; using puzzles and games; and choosing content that is likely to appeal to most students in the classroom, such as a unit on dinosaurs for a third-grade class (Bergin, 1999; Malone & Lepper, 1987; Pintrich, 2004). Teachers are also encouraged to model their own interest in the material and to provide examples of people who have pursued their interest in a topic. Intrinsic motivation research offers very similar suggestions for practice. Additional suggestions for fostering intrinsic motivation in the classroom include offering moderately challenging tasks to students and contextualizing academic material by linking it to students' personal lives and interests (Malone & Lepper, 1987). Because intrinsic motivation approaches often include the supposition that individuals are naturally inclined toward developing competence and making sense of their environments, some interest researchers suggest that promoting students' perceptions of autonomy (Ryan & Grolnick, 1986) and emphasizing mastery goals will promote intrinsic motivation in the classroom.

Empirical Support for the Stated Implications

Although a number of studies of interest and intrinsic motivation have been conducted with school-age children, very few have occurred within the natural setting of classrooms. Harter (1982) demonstrated that school-age children distinguish between perceived competence in various domains (cognitive, social, and physical), and that competence is related to intrinsic motivation. Others have also demonstrated an association between intrinsic motivation and perceived competence among children (Boggiano, Main, & Katz, 1988). Research has also demonstrated a link between appropriate challenge and intrinsic motivation (Harter, 1978). What is missing from this research is a direct link to classroom practices (Pintrich, 2004). Although Harter (1978) argued that adult caregivers are important socializing agents of mastery motivation, and Bandura (1986) demonstrated that models and reinforcement influence children's internalization of mastery goals, research conducted in classrooms to determine how teachers affect students' intrinsic motivation is scarce.

Self-Efficacy

Self-efficacy refers to individuals' judgments of their capabilities to perform specific tasks in specific situations (Bandura, 1986; Pajares, 1996). Students are more likely to engage and persist in an activity, and they exert more effort during the activity, when they believe they are able to succeed at the activity. Efficacy beliefs can be as powerful a predictor of achievement as measures of cognitive ability (Pajares & Kranzler, 1995). Of course, because self-efficacy judgments require some consideration of the skills one possesses, ability and efficacy judgments are usually highly correlated.

Bandura (1986) argued that self-efficacy judgments are created from four different sources: (1) experience (i.e., success or failure on similar tasks); (2) vicarious experience, such as observing the success or failure of models, particularly similar models; (3) verbal persuasion, particularly from a respected or otherwise credible source; and (4) physical cues, such as sweating and shortness of breath upon seeing the difficulty of questions on an exam. These four sources of efficacy form the basis for the educational implications of efficacy research.

Stated Implications of Self-Efficacy Research

Teachers can influence their students' self-efficacy by attending to both the definition and sources of efficacy judgments. Because self-efficacy is, by definition, task- or activity-specific, teachers can encourage students to think about the specific skills they have and need to complete a given task rather than to make global judgments about their competence. Even students who think of themselves as poor at math can be encouraged to have high confidence about their ability to succeed at a specific math activity for which they possess the requisite skills. Schunk and Miller (2002) listed several specific strategies that teachers might employ to enhance their students' feelings of self-efficacy. These include helping students set proximal and specific learning goals; specifically teaching students how and when to use various learning strategies; providing students with opportunities to witness models completing the same or similar tasks, particularly models who are similar to students in age or ability; offering students feedback about their performance that focuses on the students' use of specific strategies (e.g., "You did a good job remembering to borrow from the hundreds column on that subtraction problem") rather than general feedback (e.g., "Nice job"); and judiciously using rewards based on performance.

Empirical Support for the Stated Implications

Most of the research examining self-efficacy has not examined educational processes within K–12 classrooms. Therefore, most of the empirical support for the stated implications of self-efficacy research must be inferred from research conducted outside of classrooms. Much of this research was conducted by Schunk and his colleagues in the 1980s (e.g., Schunk, 1984; Schunk, Hanson, & Cox, 1987). All of these studies were experiments rather than classroom-based examinations of students' responses to their teachers' instructional practices. An experimenter typically offered some form of instruction to students individually, and the effects of these instructions on self-efficacy were examined. The research suggests that self-efficacy is enhanced when students observe successful models, develop and pursue proximal goals, and learn how to use (and vocalize the use of) effective self-regulatory strategies.

A number of survey studies have also assessed the associations between self-efficacy and certain motivational and achievement variables among K–12 students in their regular classrooms. Some of these have used authentic tasks (e.g., teacher-designed tests that were counted as part of the students' grades in the class) as the criterion tasks on which self-efficacy judgments were based (Pajares, Miller, & Johnson, 1999; Shell, Colvin, & Bruning, 1995). Although these studies revealed that self-efficacy judgments were strong predictors of achievement in the classroom, they did not examine teacher behaviors or classroom processes that might influence students' self-efficacy judgments. It is difficult to determine whether the stated implications of the experimental and correlational research apply to the question of how competence motivation might be enhanced by increasing self-efficacy in the classroom.

Expectancy–Value Theory

Expectancy–value theory states that both students' expectancy for success and their value for academic activities predict motivational outcomes such as achievement, involvement, and academic choices. It differs from other approaches that emphasize competence as the central motive. Expectancy–value research argues that "even if people are certain they can do a task, they may not *want* to engage in it" (Eccles, Wigfield, & Schiefele, 1998, p. 1028). Expectancy–value research has demonstrated that both expectancy and value make distinct and complementary contributions to students' performance and reports of motivated behaviors,

such as effort and persistence (Eccles, 1983; Wigfield & Eccles, 1992), and to the use of self-regulatory strategies (Pintrich & De Groot, 1990). In addition, studies have shown that adolescents' subjective task values predicted taking math and English classes, engaging in sports activities, and choosing a college major (e.g., Eccles, 1983; Meece, Wigfield, & Eccles, 1990).

Although none of this research explicitly examined classroom factors that might contribute to students' expectancy or value beliefs, it was conducted with K–12 students in classroom settings. On the basis of the positive associations found among value, expectancies, motivation, self-regulation, and achievement, expectancy–value theory researchers have argued that their research has important implications for classroom practice.

Stated Implications of Expectancy–Value Theory

To encourage students to develop subjective task value, teachers are encouraged to promote active participation and student control by providing some options, such as when, where, how, and which activities students pursue, and to avoid controlling statements and behaviors. In addition, teachers should select topics and activities that are authentic and meaningful to help their students discover the importance and utility value of the material. To promote a sense of competence and high expectancies for success, teachers are encouraged to provide moderately challenging tasks that help students see improvement. In addition, teachers should emphasize learning by providing specific feedback on progress and strategy use (rather than relative standing), communicating expectations that all students can and will learn, and attributing performance to effort. Teachers are also encouraged to create a supportive and caring classroom community that makes students feel valued and safe to take academic risks.

Empirical Support for the Stated Implications

A series of studies conducted by Eccles, Midgley, and their colleagues examined declines in students' expectancies and values as they made the transition from elementary to middle school. Eccles and Midgley (1989) hypothesized that these negative changes might be related to a mismatch between students' developmental needs for autonomy, competence, and relatedness, and classroom practices in middle school. Midgley and Feldlaufer (1987) found that after the transition, students desired but had fewer decision-making opportunities than in elementary school. This mismatch predicted a decline in students' value (Mac Iver & Reuman, 1988). After the transition to middle school, practices that may have increased the opportunities for social comparison were related to declines in students' perceptions of competence (Eccles et al., 1989). In addition, students who moved from high- to low-efficacy teachers during the transition had lower expectancies for success in math, lower perceptions of their performance in math, and higher perceptions of the difficulty of math (Midgley, Feldlaufer, & Eccles, 1989). Finally, students who moved from teachers they rated high in supportiveness to teachers rated low in supportiveness during the transition reported a decline in their ratings of intrinsic value, perceived usefulness, and importance of math (Feldlaufer, Midgley, & Eccles, 1988).

In another study (Eccles, 1983), observers attended mathematics classes to determine which teacher behaviors were related to students' motivation. They found that teachers' expectations influenced both achievement expectancies and course taking. For girls, the number of response opportunities and the number of open questions were positively related to value (liking) of math. In summary, data collected in classrooms showed definite relationships between teacher behaviors and students' reports of expectancy and value.

Self-Determination Theory

Self-determination theory (SDT) argues that human beings have three innate needs: competence, autonomy, and relatedness (Deci & Ryan, 1985). It is the satisfaction of these needs that leads to intrinsic motivation. Much classroom-related research has focused on the autonomy component, because SDT contends that only freely chosen, rather than coerced, actions can be experienced as intrinsic. This may provide a theoretical rationale for why some students, even when they learn, feel little joy

or pride: learning that is controlled by others is not owned.

SDT theorists acknowledge that not all school learning is intrinsically motivating. Nevertheless, they argue that one can gradually internalize extrinsic reasons for completing necessary, but unappealing, activities and, thus, infuse agency into daily learning activities. As motives for engaging in tasks become more internalized, the potential for self-determination and autonomy increases. If self-determination-promoting teacher behaviors can be shown to promote gradual internalization of extrinsic motivation in the classroom, the SDT model would have important applications in the classroom.

Stated Implications of Self-Determination Theory

Students in K–12 classrooms typically have little control over classroom activities, so much research in this tradition has focused on the negative effects of controlling behaviors. Because some research has revealed that teachers' controlling behaviors are related to decreases in students' intrinsic motivation and achievement, as well as increased feelings of anger and anxiety (Assor, Kaplan, Kanat-Maymon, & Roth, in press), SDT recommends that teachers refrain from overtly controlling student behaviors. Giving students incompetence feedback, imposing strict deadlines, using threats and competition to control behavior, giving frequent directives, interfering with children's natural pace of learning, and not allowing expression of critical or independent opinions are all discouraged by SDT researchers. Instead, teachers are encouraged to provide optimal challenges, informational feedback, interesting and stimulating material and assignments, and opportunities to view effort as a key contributor to performance (Deci & Ryan, 1985). Teachers are also encouraged to show affection, express interest in students' activities, and devote time and resources to students (Assor & Kaplan, 2001).

Empirical Support for the Stated Implications

Most SDT research has used experimental or survey research designs in classrooms. We could find no studies that used observation or interview methods. A few studies used student reports of the autonomy supportiveness of teachers in classrooms, and then linked these reports to measures of student motivation and achievement. Higher perceived support for autonomy in the classroom was related to higher intrinsic motivation, mastery motivation, perceived competence, and self-esteem (Deci, Schwartz, Sheinman, & Ryan, 1981; Ryan & Grolnick, 1986).

Although SDT studies have not taken measures of teachers' actual classroom behaviors, an experimental study of student teachers showed that autonomy-supportive instruction included listening, asking questions about what the student wanted, responding to student-initiated questions, and offering statements that acknowledged the student's perspective (Reeve, Bolt, & Cai, 1999). This study did not examine potential links between these teacher behaviors and student motivation or achievement.

Skinner and Belmont (1993) found that third- to fifth-grade students who perceived the greatest amount of structure, autonomy support, and involvement in the classroom had teachers who were dependable and showed affection for, were attuned to, and dedicated time and energy to, their students. Students of high-involvement teachers also reported the most behavioral engagement, such as effort and persistence, and positive emotion, such as interest and happiness. Assor and Kaplan (2001) investigated the relation between students' perceptions of their teachers' directly controlling and autonomy-supportive behaviors and their motivation while studying. Directly controlling teacher behaviors predicted mostly negative student feelings (i.e., anger, stress, boredom) during learning, whereas autonomy-supportive behaviors predicted positive feelings (i.e., interest and enjoyment). Perceptions of competence were related to enjoyment of learning as well.

Two studies investigated the relation between autonomy-supportive classrooms and dropping out of high school. Each found that teacher autonomy support was related to student perceptions of competence, autonomy, and intention to persist in, or drop out of, school (Hardre & Reeve, 2003; Vallerand, Fortier, & Guay, 1997). Additional research examined predictors of achievement and school adjustment among students with learning disabilities and those with emotional handicaps (Deci, Hodges, Pierson, & Tomassone, 1992). For students with learning disabilities, competence was the best predictor of achievement and adjustment. Interestingly, perceived autonomy best predicted these outcomes for students with emotional handicaps. This study suggests that different needs may be more salient for different students, and that focusing on meeting one need, such as competence, may not serve all students best. In summary, SDT studies have linked autonomy, as well as perceptions of autonomy and competence in the classroom, to achievement and to behavioral, motivational, and emotional outcomes for students. However, studies of how teachers establish autonomy-supportive classrooms have not yet been done.

Attribution Theory and Control Beliefs

The importance of perceived control in the development and support of competence motivation has been a central focus of attribution research and Dweck's (1999) work on theories of intelligence and locus-of-control constructs. The basic premise of this research is that when students believe that their academic achievement depends on controllable factors, they are more motivated and generally achieve at higher levels than when they feel a lack of control over their own learning (Pintrich, 2004; Weiner, 1986). Although it may be more adaptive at the situation-specific level for students to attribute failure to unstable, uncontrollable causes (e.g., bad luck or a particularly difficult exam), at the individual-difference level, greater perceptions of control are associated with increased motivation. As de Charms (1968) argued, it can be difficult to feel competent when one feels like a "pawn" rather than an "origin" of behavior.

Implications of Attribution Theory and Control Beliefs

To help their students develop or maintain a sense of personal control over their learning and achievement, teachers have been encouraged to assess their students' attributions for success and failure, to provide feedback that encourages students to recognize the control they have over their learning, and to alter attributional styles that diminish their sense of control (i.e., attributional retraining) (Pintrich & Schunk, 2002). Dweck (1999) suggested that when providing students with feedback, teachers should emphasize process factors, such as effort, the use of appropriate strategies, and individual growth, rather than just the end result as a means of encouraging students to adopt an incremental view of ability. Attribution research has highlighted the importance of feedback that is both accurate and, particularly in the case of failure, focused on the unstable, changeable causes for failure (Blumenfeld, Pintrich, Meece, & Wessels, 1982). In some cases, teachers have been encouraged to engage in ongoing attribution retraining with students to help them develop controllable attributions that can replace helpless attribution patterns (Foersterling, 1985).

Empirical Support for the Stated Implications

Although there is substantial evidence from experimental research that attributions for success and failure can be changed from uncontrollable, stable attributions to controllable attributions, there is little research demonstrating a link between teacher behaviors and student attributions in classrooms. Research from the 1980s revealed that teacher feedback about the causes of success and failure can influence students' perceptions of their own ability and effort (Pintrich & Blumenfeld, 1985). But it also revealed that teachers favor effort feedback and rarely offer ability feedback or attributions (Blumenfeld et al., 1982). When teachers do make ability attributions or give ability feedback (e.g., "You must be really smart in math!"), it is likely to be salient, because it is rare. Research on the effects and student interpretations of such unusual feedback is scarce.

Rosenholtz and Simpson (1984) argued that whole-group (rather than cooperative or individualized) instruction, ability grouping, and providing public feedback fostered social comparison and encouraged students to think of ability as stable. Rosenholtz and Wilson (1980) demonstrated this in surveys of fifth- and sixth-grade students. They found that some students were quite able to perceive ability messages that teachers made salient. Such messages may have been partic-

ularly damaging to low-ability students, a group most likely to adopt ego-protective strategies (Covington, 1992), reducing effort, persistence, and intrinsic motivation. Experimental studies have also demonstrated that children interpret pity and excessive help as signals to make low-ability attributions and to set lowered expectations for success (Graham, 1984). Also, teachers' use of praise (to preserve the egos of low achievers) and criticism (to express high expectations for high achievers) can influence low-ability students' motivation negatively.

Other Research Related to Competence Beliefs in the Classroom

Motivational Influence of Effective Instruction

Some research on teacher influences on student competence motivation has been conducted outside of the major motivation frameworks described previously. Stipek, Salmon, et al. (1998) argued that "best practices," as advocated in the instructional literature, have positive influences on competence motivation primarily through stressing appropriately challenging and meaningful tasks, emphasizing learning and improvement, and encouraging students' active participation and autonomy. Turner et al. (1998) found that when teachers used appropriately challenging mathematics instruction, students reported the highest intrinsic motivation (and the least boredom).

Teachers' Beliefs and Emotions

Teachers' beliefs regarding ability (malleable vs. fixed), their expectations (Weinstein, 2002) and their own efficacy to teach (Ashton & Webb, 1986; Midgley et al., 1989) should affect the teaching practices used, which, in turn, create a climate that focuses children's attention on either improving or demonstrating competence, or avoiding demonstration of incompetence.

Weinstein (2002) demonstrated that even young children perceive teacher differential treatment and teacher expectations in the classroom. If students perceive low expectations from their teacher, they may develop low perceptions of ability and reduce effort in the classroom. Using interviews with children, Weinstein found that students learned about teacher expectations and perceptions of student ability by attending to the type of work they were assigned, things the teachers said, when and how much they offered help, the type of feedback they give, and even teachers' nonverbal cues, such as facial expressions and tone of voice. Children reported that teachers' feedback was often public and comparative rather than private and focused on individual progress or quality of their work. Children's motivation and liking of the subject matter declined when they perceived low expectations and low-ability cues. Based on classroom observations, Weinstein concluded that certain features were likely to send messages about expectations. They included grouping, materials, evaluation system, motivational strategies, responsibility given to children, and relationships in class (warmth, trust, humor, and concern) with peers, and with teachers.

SUMMARY OF RECOMMENDATIONS FOR ENHANCING COMPETENCE MOTIVATION IN CLASSROOMS

There is quite a bit of overlap across the various motivational approaches previously reviewed regarding the suggestions for promoting competence motivation in the classroom. Synthesizing across research programs, we developed the following list of suggested classroom practices. Table 17.1 summarizes this list, as well as the motivational perspectives that support each recommendation and potential difficulties of implementing them.

1. Develop and assign academic tasks and activities that are personally meaningful and relevant for students.
2. Develop and assign moderately, or appropriately, challenging tasks and material.
3. Promote perceptions of control and autonomy by allowing students to make choices about classroom experience and the work in which they engage. Also, encourage students to view intelligence, learning, and performance as personally controllable by attributing performance to controllable factors such as effort and strategy use. Avoid controlling or coercive language and instructional practices.
4. Encourage students to focus on mastery, skill development, and the process of learning rather than just focusing on outcomes such as test scores or relative performance.
5. Help students develop and pursue proximal, challenging, achievable goals.
6. Infuse the curriculum with fantasy, novelty, variety, and humor.
7. Provide accurate, informational feedback focused on strategy use and competence development rather than social–comparative or simply evaluative feedback.
8. Assess students' confidence, attributional tendencies, and skill levels to help meet their preferences for challenge and to help students approach tasks with realistic expectations and cope with difficulties adaptively.

Despite their appeal, many of these recommendations are not based on classroom research, and the recommendations for the application of these motivational principles have often not been tested in classrooms. In the next section, we raise some questions about the applicability of the empirical support for the stated classroom applications and implications of motivation research.

CAUTIONS ABOUT APPLYING MOTIVATION PRINCIPLES IN CLASSROOMS

With the exception of research on achievement goals and expectancy–value research, there have been few studies examining the association between teacher practices and student motivation in the classroom. There is ample reason to suspect that many of the stated implications of motivation research for classroom practice will not actually work in the classroom as predicted (Blumenfeld, 1992). In fact, some empirical research calls both theoretical claims and recommended practices into question. Although research has explored many of the factors that contribute to individuals' becoming and feeling competent, it is not clear that these conditions can be created regularly in the classroom. In many classrooms, there are greater incentives for students to *be* competent or to *appear* competent than there are for *becoming* competent. Becoming competent generally involves effort and risking failure. Both of these may be more problematic in classrooms than in experimental research situations. In this section, we consider a nonexhaustive list of several factors that may inhibit the application of motivation principles in the classroom. First, we consider two general questions about the relevance of applying research to practice. Then, we consider how the application of specific motivational principles, simple as they may seem, is complicated by the complex nature of classrooms.

- *Can experimental research be applied to classrooms?* Much of the research on competence motivation has been conducted using experimental methods. In these studies, participants are generally taken out of their regular classrooms and given some sort of individual instruction or training, and the effects of the instruction or training on subsequent motivation are examined (e.g., Schunk's self-efficacy studies in the 1980s, attribution retraining, achievement goal manipulations; Elliot & Harackiewicz, 1996). Although this research has clearly demonstrated that motivation can be influenced by such manipulations, there are a number of reasons to suspect that these experimental conditions cannot be recreated in regular classrooms. First, the sheer number of students in most classrooms makes individualized instruction, such as that used in attribution retraining, difficult. Second, the motivational messages salient in most classrooms tend to be much more mixed than those found in the typical experiment. For example, experimental manipulations of achievement goals typically involve telling participants in different conditions that the purpose of the task is to pursue a single goal (e.g., do better than other students). In classrooms, students are often given mixed goal messages. For example, students may be encouraged to focus on their own improvement but may be evaluated in either normative or absolute grading systems that disregard improvement. Third, the meaning of tasks or instructions may differ in classrooms and experimental conditions. For example, a focus on achieving short-term, proximal goals may enhance efficacy and motivation in experimental settings but may be embarrassing and demotivating in a more

TABLE 17.1. Summary of Recommended Classroom Practices for Enhancing Competence Motivation

Recommended practice	Theoretical proponent	Empirical support	Limitations of empirical support	Barriers to classroom application
1. Develop and assign academic tasks and activities that are personally meaningful and relevant for students.	Achievement goal research, E-V theory, SDT, intrinsic motivation and interest research	Some evidence from E-V research, interest research, intrinsic motivation, and goal theory show an emphasis on meaning related to greater engagement and motivation.	Meaning and relevance of academic work almost never examined in actual classroom settings.	Very difficult to individualize instruction like this; hard to know what is meaningful to all students; more difficult than following prescribed curriculum.
2. Develop and assign moderately or appropriately challenging tasks and material.	Achievement goal research, SDT, intrinsic and interest, E-V, self-efficacy	Experimental research in several motivation programs shows engagement higher on moderately challenging tasks.	As with meaning and relevance, challenge level rarely examined in classrooms. Some evidence that students resist challenge.	Teachers often not good at designing tasks of appropriate challenge; students resist challenge.
3. Promote perceptions of control and autonomy by allowing students to make choices about classroom experience and the work they engage in (e.g., what books to read, how to demonstrate knowledge, etc.). Also encourage students to view intelligence, learning, and performance as personally controllable by attributing performance to controllable factors like effort and strategy use. Avoid controlling or coercive language and instructional practices.	Achievement goal research, attribution theory, Dweck's "theories of intelligence" research, SDT	Attribution research on benefits of contollable attributions; Dweck's research on malleable intelligence theories; E-V research demonstrating declines in value, competence perceptions associated with declines in perceived control; SDT research demonstrates that perceptions of autonomy are related to positive student outcomes including interest, competence perceptions, positive affect, and self-esteem.	Attribution and theory of intelligence research tends to be experimental; little research observing how teachers promote autonomy and control beliefs in the classroom, or how students perceive autonomy-supportive and coercive teacher practices. Mostly survey research in SDT and E-V areas.	Can be difficult for teachers to walk the fine line between promoting autonomy and offering too little scaffolding for learning. Encouraging students to attribute performance to effort can backfire if high effort leads to low performance. Teachers under increasing pressure to follow narrow curriculum; increase in student test scores can cause them to be more coercive with their students.
4. Encourage students to focus on mastery, skill development, and the process of learning rather than just focusing on outcomes like test scores or relative performance.	Achievement goal research, attribution theory, self-efficacy, E-V theory, SDT	Student perceptions of mastery goal structures; observational studies of classroom goal structures; Schunk et al. studies of strategy training; attribution retraining studies	Surveys and observations make causal direction difficult to determine, but they were at least looking at genuine classroom processes; variation in perceptions of classroom goal messages; SE, attribution studies were experimental.	Can produce mixed message when grades are based on absolute performance level and test scores are norm-referenced. Social comparison can be motivating for many students; occurs naturally.
5. Help students develop and pursue proximal, challenging, achievable goals.	Self-efficacy	Series of studies by Schunk and colleagues; Shell and colleagues; Pajares and colleagues	Schunk et al. were experimental—may not replicate in classrooms. Shell, Pajares studies were survey—did not focus on classroom processes.	Requires individualizing instruction which is time-consuming. Difficult for teachers to know level of all students and to design appropriately challenging tasks.
6. Infuse the curriculum with fantasy, novelty, and humor.	Interest and intrinsic motivation	Summarized by Bergin; Malone & Lepper; Lepper & Henderlong	Based on experiments and computer applications; not examined in classrooms	Can detract from primary concepts to be learned; more difficult than following textbook.
7. Provide students with competence feedback that is informational, not just evaluative.	Self-efficacy, SDT, E-V, attribution, achievement goal research, teacher expectancies	Schunk experiments; SDT research on controlling practices; Weinstein research on teacher expectancies	Based mostly on experiments in self-efficacy, SDT, and intrinsic motivation research	Summative evaluations are required in school. Grades become most valued feedback for students.
8. Assess students' knowledge, self-efficacy, and attributional patterns in order to select optimally challenging tasks for them, approach tasks with realistic expectations, and explain failures adaptively.	Self-efficacy, attribution theory, SDT	Alfi, Katz, & Assor; Clifford	There is little or no research reporting teachers' assessments of these student characteristics in real K–12 classrooms.	Difficult to accurately assess skills, attributional tendencies, and self-efficacy for all students in large classes, particularly secondary level. Efficacy, attributions may be highly task specific, difficult to assess constantly.

Note. E-V, expectancy–value theory; SDT, self-determination theory.

public setting such as classrooms. Pursuing proximal goals that are much less advanced than one's classmates may be humiliating, whereas focusing on long-range, distal goals, even if they are not achievable, may help some students save face in front of their classroom peers.

• *Do survey and experimental research provide an accurate picture of the classroom?* Students' responses to surveys or behavior in experiments may offer a distorted view of the classroom. As previously mentioned, in experimental situations, students often respond to clear instructions in predictable ways. Similarly, responses to researcher-provided, closed-ended survey questions regularly produce predictable associations between students' perceptions of the classroom motivational climate and their own motivational orientations. But when researchers have actually examined what happens in classrooms, they find that teacher and student behavior does not always conform to theoretical specifications and is often unpredictable. This may be related to the fact that most theory is deductive and based on what is logical rather than empirical (Turner & Meyer, 1999). Urdan and his colleagues (1999) found that teachers rarely discussed goals, and students often did not perceive even the most blatant goal messages, as theory would predict. Miller and Meece (1997) found that even when the teachers they worked with to modify their reading and language arts assignments faithfully implemented the intervention, their third-grade students' achievement and strategy use was not altered. Meece (1991) found that classrooms with higher average levels of student mastery goal orientation did not differ from those with lower average levels of mastery goal orientation in either the cognitive complexity of the tasks assigned or the grouping patterns of students. Patrick, Anderman, Ryan, Edelin, and Midgley (2001) found that classrooms that differed in their perceived levels of mastery and performance goal structures did not differ in the frequency with which students were asked to demonstrate their knowledge publicly or the use of extrinsic rewards. Similarly, Turner and her colleagues (2002) discovered that social comparison in classrooms perceived as having a high performance focus was related less to public evaluation per se and more to nuanced factors, such as teacher affect, and to instructional practices. These observational studies all found that elements of instruction believed to influence the motivational goals of students (e.g., types of tasks, social organization of students, how students were rewarded or recognized, how public demonstration of knowledge was) did not necessarily work in ways predicted by theory or by the results of survey and experimental studies.

Survey and experimental research may also distort the true nature of teacher influence on student motivation in classrooms. Such research typically suggests a unidirectional flow of influence from teachers to students. In reality, the motivational climate in classrooms is produced by a reciprocal exchange of messages that flows constantly between students and teachers, and among students themselves. For example, when students in a classroom report that their teacher uses instructional practices that reflect a mastery goal orientation and create a mastery goal structure in the classroom, it is possible that the teacher has adopted those strategies in response to her perception that the students were motivated by mastery messages. By appropriately responding to students' preferences, the teacher may also reinforce students' mastery goal orientations. It is hard to trace the causal flow of motivational influences in classrooms. Survey studies that reveal an association between teacher practices and students' motivation may not accurately reflect the direction of causal influence.

• *Can teachers really encourage students to seek challenge?* Just as the academic environment provides opportunities to become and feel competent, it offers a wide array of opportunities to be and feel incompetent. Fear of being incompetent can motivate some students to exert additional effort, with an eye toward achieving success, but it can also be demotivating, causing students to adopt an avoidance goal orientation in achievement situations and withdraw effort (Elliot, 1997).

As an example of the double-edged sword of competence motivation, consider the stated implication of a number of motivation approaches that teachers should assign moderately challenging tasks to students. Such tasks are believed to stimulate interest, encourage intrinsic motivation, and spur the adoption of a mastery goal orientation. Although many students find challenging tasks motivating, for a number of students, these types of tasks arouse fear, because challenging tasks carry opportunities for failure. Research has clearly documented a link between fear of failure and the adoption of performance–avoidance goals (Elliot, 1999). When such failure occurs in front of teachers and peers, as it does in classrooms, the fear of appearing and feeling incompetent often causes students to adopt defensive, withdrawing behaviors in class. The same type of activity that can spur competence motivation in an experiment may, for many students, lead to a lack of effort and motivation, and the adoption of self-handicapping strategies (Urdan & Midgley, 2001). Unfortunately, in many classrooms, it may be worse to try and fail than to not try at all.

Even when teachers want to provide challenging tasks for students, there is considerable evidence that their efforts may not be fruitful (Blumenfeld, 1992). Because students understand the inherent dangers of failing at challenging tasks, they often resist this type of work and try to negotiate down the demands of the task with the teacher (Doyle, 1986). In addition, research shows that teachers are not particularly adept at developing or selecting appropriately challenging tasks (Bennett, DesForges, Cockburn, & Wilkinson, 1984). Teachers often select tasks that do not match the skills and abilities of their students well, partly because most classrooms contain students with a wide range of abilities. Finally, teachers do not always understand how to support students when engaged in challenging work, and this may discourage students from persisting (Turner, Meyer, Midgley, & Patrick, 2003). This combination of factors may discourage teachers from assigning creative or challenging work and lead them to settle for lower level facts, algorithms, or even completion as indicators of learning and achievement. To achieve the balance of high cognitive demand and the safety necessary for students to respond positively, challenge needs to be offered in a classroom that stresses mastery goals and the constructive value of error (Clifford, 1984). Most classrooms are not very successful at helping students see error as informational, possibly because many teachers rely on correct answers to know that students are learning.

• *Can teachers provide interesting, meaningful, and relevant tasks*? Many motivational researchers suggest that teachers create and select interesting and relevant tasks for students. This is very difficult for most teachers to do. Students' interests and values are so varied that it is hard for teachers to find material or tasks that most or all students will find personally meaningful or interesting. Recognizing this difficulty, some researchers have suggested that teachers try to stimulate students' *situational* interest by selecting broadly appealing topics that most children of a certain age would find appealing, or by incorporating elements of fantasy, humor, novelty, and variety into classwork (Bergin, 1999; Hidi, 2000). Although these may be good ideas, in practice, teachers often are confined to following a fairly narrow curriculum that is heavily dependent on textbooks. Research suggests that efforts to enliven the material in textbooks often fail, leading to an obfuscation of the content goals (Brophy & Alleman, 1991). Blumenfeld (1992) argued that trying to make classroom tasks or materials more interesting by adding variety, novelty, and humor can actually "detract from a focus on the real content and problem and probably does not sustain motivation to learn over the long haul" (p. 273). In the end, it may be the teacher's interest in the task that helps students to see its value and relevance, rather than characteristics of the task itself.

• *Can student autonomy and control really be encouraged in classrooms?* Self-determination theory, achievement goal approaches, and attribution theory all emphasize the importance of students' perceiving that they have some control over learning. When students feel that their participation is not voluntary, and that educational outcomes (particularly bad ones) are beyond their control, competence motivation is reduced. Given the compulsory nature of K–12 education, the increasing standardization of the curriculum and emphasis on high-stakes testing, and strong criticism of too much choice offered by "shopping mall" high schools, developing a sense of autonomy in school may be problematic. Can students feel like origins rather than pawns when they are told they must go to school, must read selected textbooks, and must pass certain tests to advance to the next grade or graduate? Even as their choices about which classes to take are being ever reduced? We suspect that students, particularly adoles-

cents, develop an understanding of their lack of autonomy in schools.

Attribution theory suggests that teachers can encourage students to develop a sense of control by encouraging them to view performance, particularly poor performance, as attributable to effort. But when students try hard and fail, as many do, it becomes difficult to avoid attributing failure to a stable, uncontrollable lack of ability. In addition, certain teacher beliefs may clash with the goal of supporting students' perceptions of control. For example, teachers of early adolescents tend to believe that they need to exert more control over students than do teachers of elementary school children, thereby potentially reducing adolescents' sense of autonomy in the classroom (Midgley & Feldlaufer, 1987). Teachers who lack a sense of efficacy to influence the performance of their students, particularly their lower achieving students, have difficulty helping their students view achievement as personally controllable (Tschannen-Moran, Hoy, & Hoy, 1998). In addition, teachers who tend to attribute student achievement to relatively stable factors, such as intelligence, socioeconomic status, or race, may send messages about low expectations and therefore be less inclined to encourage their students to view effort as the cause of academic success and failure (Weinstein, 2002). Finally, as teachers come under increasing pressure to have their students perform well on standardized tests, they may feel the need to exert greater control over their students, thereby reducing students' perceptions of their own agency (Pelletier, Seguin-Levesque, & Legault, 2002).

- *Do teachers understand or value the recommended applications of motivation research?* If principles of motivation research are to be applied in the classroom, teachers will have to endorse them. It is not at all clear that they do, either because they have had little opportunity to learn about research in motivation, or because they do not accept the principles or believe they will work. As previously mentioned, many do not believe that students should have control and voice in the classroom. Although a number of achievement goal researchers have argued that an emphasis on competition in the classroom can produce fears among students that may activate avoidance motivation, research indicates that many teachers believe in the motivational power of competition (Thorkildsen & Nicholls, 1998). Many simply view students as unmotivated and do not endorse the premise that human beings have a natural inclination to understand and master new material. They think that students and families bear responsibility for motivation, not teachers (Urdan, Midgley, & Wood, 1995). Teachers' efficacy and attributions for student achievement influence their beliefs about whether they can influence their students' motivation and, therefore, their willingness to try.

Even if teachers wanted to apply some or all of the motivation principles in their classrooms, a number of practical constraints would inhibit their efforts. One of these is that the jargon of motivation research, usually developed by psychologists, is not readily understood or accessible to teachers (or anyone who has not devoted years to the study of motivation). Another constraint is that the faithful implementation of even one or two of the practices recommended by motivation researchers would require significant changes in teachers' regular practices. Although change is very time-consuming, teachers are afforded little time to change instructional practices. Tollefson (2000) argued that before teachers alter their teaching styles, school structures must be altered to encourage the professional development of teachers. Dividing teachers into separate classrooms teaching large numbers of students in discrete academic disciplines inhibits its sharing of information among teachers and leaves little time for meaningful instructional innovation. Simply telling teachers what they should do to enhance the competence motivation of their students is clearly not enough to make it happen. It may take a much larger vision, involving an understanding of how research can contribute to practice (Burkardt & Schoenfeld, 2004). This is a general concern in educational research, not just in motivation.

FUTURE DIRECTIONS

To better understand how competence motivation can flourish in classrooms, we need to expand our focus and our methods, and to develop theories of motivation based on studies of classrooms. Enlarging the focus will entail casting our view beyond the individual to individuals and contexts. It will require generative thinking beyond paradigms that have dominated in psychology. Central to these goals is a way to understand the reciprocal relationships among people and between people and contexts. Such approaches have been used to examine content learning, but they have not been extended to "motivational learning."

Enlarging methods will involve spending time with teachers and students in their own settings, and finding ways to hear their voices, understand their thinking, and interpret their actions. More importantly, researchers and teachers must learn how to communicate their respective knowledge, both research- and practice-based. Enlarging theories might involve one of several possibilities. First, classroom research might help us change, elaborate, or consolidate existing theories of motivation. Second, other theories of learning, such as sociocultural approaches, might be adapted to understand competence motivation in classrooms. Third, new theories might emerge from inductive, grounded studies of motivation in classrooms. The recommendations that follow describe specific approaches that are consistent with our view of future directions in competence motivation research.

Conduct Observational and Ethnographic Studies

We need to identify the types of behaviors that teachers actually engage in during instruction. Descriptions of teacher practices may show that some practices thought to be important are not, or are superceded by others. Similarly, research might help explain under which conditions practices such as social comparison are harmful or neutral. These observations may either reflect the recommendations of motivation research or help construct new theories of motivation. Specifically, how do teachers make material interesting and relevant to students? How do they help students feel efficacious? How do they challenge students without scaring them? How do they encourage students to feel in control of their learning, to attribute their performance to effort, and to think of their ability as malleable? We do not know enough about what this looks like in classrooms.

Include Students in the Equation

We need to talk to students about specific teacher behaviors and classroom events. Limited qualitative research has already revealed that the presence of motivational cues in the classroom does not ensure that students will attend to them or interpret them as predicted; thus, only certain messages may be relevant to students. Which messages make an impression? Are certain student needs, such as feelings of safety and relatedness in the classroom, prerequisite to satisfying others, such as competence motivation? How much do student characteristics (e.g., age, achievement level, identity) affect their attention to and interpretation of these motivational messages? Assumptions about the transmission process from teachers' practices to students' motivational orientations may not be supported in the classroom and need to be validated through discussions with students.

Conduct Intervention Studies

Teachers often do not apply motivational principles in the classroom spontaneously. For instance, some research indicates that teachers rarely explicitly discuss goals or make a conscious effort to emphasize mastery goals rather than performance goals. Based on findings from observational studies, interventions such as design experiments could be particularly effective in examining how certain motivational principles can be put into practice in specific settings. Once tried and revised in certain settings, the resulting principles could be extended to a larger number of sites in different contexts. This kind of research, although difficult and expensive, would be one way both to discover *what* works and to learn *how* it works.

Expand Our Notion of Competence Motivation

Competence is related not only to beliefs about efficacy but also to other factors, such as value, autonomy, and relatedness. In a classroom, these individual motivations are

likely related and interdependent, so that satisfying one is positively related to satisfying others. This suggests that there may be many routes to competence motivation, and that it is a multidimensional construct. Furthermore, we suggest that satisfying motivational needs is not an individual endeavor, but is interwoven with the concerns of teachers, students, and even school and community cultures. Therefore, ecological features such as a climate of trust and safety, built upon serious attention to the social dynamics in the classroom, must exist for approach motivation to succeed over fear and avoidance motivation. Seeking challenge, taking responsibility and ownership over learning, and viewing learning as a developmental process that involves mistakes (rather than simply a fixed ability) are all threatening, particularly in large classes filled with one's peers. For that reason, we believe that the larger picture, that of the classroom, should be the focus of our research on competence motivation in the decades ahead.

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CHAPTER 18

Motivation in Sport

The Relevance of Competence and Achievement Goals

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The relevance of competence to performance and participation in the athletic realm is evident to even the most casual observer of or partaker in sport. Anyone who has engaged in a sport contest, watched a sport competition, coached someone learning a new physical skill or aspect of technique, and/or has decided whether to join, stay with, or drop out of sport has clearly witnessed the significance of competence to sport behaviors. Indeed, a perusal of the sport psychology literature readily indicates that ability, in particular, *perceptions* of that ability, is central to task execution (e.g., Weinberg, Gould, Yukelson, & Jackson, 1981) and engagement (e.g., Roberts, Kleiber, & Duda, 1981) or disengagement (e.g., Burton & Martens, 1986) in sport settings. An examination of this literature also reveals that various theoretical models have laid the basis for research on the antecedents and consequences of perceived sport-related competence. A considerable number of studies have been grounded in Bandura's (1977, 1986) social cognitive theory and have centered on judgments regarding task-specific competencies or perceptions of self-efficacy (see Feltz, 1992; Feltz & Lirgg, 2001). Research in youth sport settings (e.g., Babkes & Weiss, 1999; Horn, Glenn, & Wentzel, 1993; Roberts et al., 1981), concerned primarily with developmental and socialization influences on perceived competence, has been based on Harter's competence motivation framework (Harter, 1978, 1981). Eccles's expectancy–value model (Eccles, Jacobs, & Harold, 1990; Eccles & Wigfield, 1995) has been tested in the sport domain as well (e.g., Brustad, 1996; Eccles & Harold, 1991), providing greater awareness of the social factors impacting gender differences in sport competence and interest.

In this chapter, the theoretical emphasis is on contemporary achievement goal frameworks, which have dominated research on achievement motivation in sport since the early 1990s. This line of work has primarily been undergirded by the conceptual contributions of Nicholls (1984, 1989), Dweck (1986, 1999), Ames (1992a, 1992b), and, more recently, Elliot (1997, 1999; Elliot & Harackiewicz, 1996). In particular, the terminology, proposed achievement goal constructs, and theoretical tenets that have stemmed from the writings of Nicholls (1984, 1989) have had a tremendous impact on sport motivation research over the past decade.

It is both interesting and impressive to note that the achievement goal literature specific to the physical domain goes beyond a unitary concern with achievement motivation in organized sport or *athletic* situations. A rather extensive body of research has focused on the motivational processes operating in physical education classes (Biddle, 2001; Duda & Ntoumanis, 2003; Papaioannou, 1995). Studies have also begun to look at exercise motivation from an achievement goal perspective (e.g., Biddle, Soos, & Chatzisarantis, 1999; Kimiecik, Horn, & Shurin, 1996; Lloyd & Fox, 1992).

Delimiting the current discussion specifically to the sport-related literature still leaves a plethora of research directions, study findings, and numerous theoretical and measurement-related issues that are impossible to address with thoroughness in one book chapter (regarding additional reviews in this area, see Duda, 1992, 1993, 2001; Duda & Hall, 2001; Duda & Whitehead, 1998; Roberts, 1992, 2001; Treasure, 2001). Exemplifying the extensiveness of this line of work, a recent systematic review by Biddle, Wang, Kavussanu, and Spray (2003) of published articles (in English) from 1990 to 2000 on the correlates of goal orientations in sport settings involved 98 studies, involving 110 independent samples (total N = 21,076).

With the breadth of this field of inquiry in mind, one aim of this contribution, then, is to provide a synopsis of some of the major questions that *sport* achievement goal researchers have posed and the manner in which they have attempted to answer such questions. Another purpose of this chapter is to encapsulate the prevailing pattern of findings related to these queries. An additional aspiration is to draw attention to the theoretical advancements, and the conceptual and practical issues raised in the existent work on achievement goals in sport.

I begin with a short description of the major constructs embedded in the sport achievement goal literature, namely, the concepts of goal orientations, motivational climate, and goal involvement (Duda, 2001). In each case, I highlight prevailing measurement efforts. The major theoretical tenets, emanating from what are now referred to as dual goal, or dichotomous achievement goal, frameworks, are summarized, and major research trends are described. Recent incorporations of trichotomous and 2 × 2 goal models (Elliot, 1997, 1999; Elliot & Church, 1997; Elliot & McGregor, 2001) in sport research and emergent findings are subsequently reviewed in brief. Such work considers that achievement goals can be both approach- and avoidance-oriented. Throughout the chapter, in the spirit of fostering further work on competence and achievement goals in the sport domain, I propose unresolved issues and potential areas for future inquiry for the reader's consideration.

A fundamental assumption of achievement goal frameworks is that the meaning of achievement activities, such as sport, is what colors ensuing affective responses, cognitions, and behaviors. It is also assumed that this meaning stems from the achievement goals endorsed by individuals (Ames, 1992a; Dweck, 1986; Nicholls, 1984, 1989). In essence, achievement goals are held to be the interpretive lens influencing how we think, feel, and act while engaged in achievement endeavors.

Nicholls (1984, 1989) argued that variation in the construal of competence underlies what achievement goal is adopted in a particular setting. Specifically, in his view, the conception of competence undergirds how success (or subjective goal attainment) is defined. Indicative of the dichotomous goal perspective, two major goals are proposed (i.e., a "task" and an "ego" goal) that reflect two different ways of defining or construing competence. When a task goal is manifested, the concern is with meeting the demands of the task, exerting effort, and developing one's competence. Realizing high competence that is interpreted in a self-referenced manner and inextricably linked to trying one's best is of import when task goals prevail. More specifically, according to Nicholls (1989), people are focused on an "undifferentiated" conception of competence, if striving for task goals. Demonstrating high ability is not distinguished from or dependent on how much effort is

given in this case; both are fundamental to subjective success.

When focused on an ego goal, individuals desire to demonstrate superior competence with respect to relevant others and/or normative standards (Nicholls, 1984, 1989). Improving and/or putting forth effort are not sufficient to occasion a sense of success, because there is a fixation with revealing a "differentiated" conception of competence (Nicholls, 1989), in which ability and effort are seen to covary. Thus, if concerned with exhibiting high differentiated competence, one would feel more able and successful if he or she could exhibit outstanding performance with minimal effort. On the other hand, high effort that does *not* result in comparably high performance would be predicted to promote feelings of low competence.

When sport experiences are interpreted through the lens of an ego goal focus, preoccupations with and a greater awareness of the self are likely to be present (Duda & Hall, 2001; Dweck, 1999; Kaplan & Maehr, 1999). When one is centered on ego goals, it is assumed that there is greater apprehension about the adequacy of one's ability (i.e., *proving* oneself rather than *improving* oneself; Dweck, 1999) and a greater likelihood of questioning whether one is good enough in challenging situations. In the demanding and often unpredictable world of competitive sport, it is difficult always to be the best and potentially quite debilitating to be fixated on showing superiority.

ACHIEVEMENT GOALS IN SPORT

Central Constructs

Three central achievement goal constructs that have been examined in the sport domain are dispositional (sport) goal orientations, perceptions of the motivational climate, and goal involvement. With respect to the former, Nicholls (1989) proposed that there are individual differences in the proneness for task and ego goals. More specifically, it is held that, in any achievement activity, individuals vary in their degree of task and ego orientation. Congruent with Nicholls's thinking (1989), these two goal orientations tend to be orthogonal in the sport domain (e.g., Chi & Duda, 1995). Such independence means that people can be high or low in task and ego orientation, or high in one orientation and low in the other.

In terms of the assessment of sport goal orientations, two measures have dominated the field. Both are bidimensional and capture individual differences in the emphases placed on task- or ego-focused criteria for subjective success (i.e., individuals respond to items following the stem, "I feel successful in sport when . . . "). The Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda, 1989), developed by Duda and Nicholls, drew from previous instruments designed to tap dispositional goals in classroom settings (Nicholls, 1989). The TEOSQ had been used in 80.6% of the studies considered in the recent systematic review by Biddle and colleagues (2003). The Perceptions of Success Questionnaire (POSQ; Roberts, Treasure, & Balague, 1998) also has been employed in numerous sport-related investigations. Both instruments have been found to be psychometrically sound, have been translated and validated in numerous languages, and have been used to measure achievement goal tendencies among older children through adult participants in a variety of sports at different competitive levels (see Duda & Whitehead, 1998).

A determination of perceived situationally emphasized achievement goals has also been of interest within the sport literature. For the most part, such efforts have pulled from Ames's work on students' perceptions of the motivational climate operating in classrooms (Ames, 1992a, 1992b; Ames & Archer, 1988). This climate is deemed to be composed of various structures (e.g., the system of evaluation, the type of and basis for recognition, the nature of interactions within and between groups, and the source[s] of authority) and is viewed as an overriding psychological environment that impacts the likelihood that individuals will be more or less concerned with exhibiting self- or other-referenced competence.

In the sport domain, the majority of work conducted to date has concentrated on perceptions of the motivational climate created by coaches via either version 1 or 2 of the Perceived Motivational Climate in Sport Questionnaire (PMCSQ-1 or PMCSQ-2; Newton, Duda, & Yin, 2000; Seifriz, Duda, & Chi, 1992; Walling, Duda, & Chi, 1993). Grounded in a hierarchical measurement model (that assumes the existence of higher order task- and ego-involving dimensions or scales underpinned by more specific situational structures or subscales), the PMCSQ-2 assesses the following task-involving facets of the perceived coach-created motivational climate: the view that the coach emphasizes effort and athletes' personal improvement, contributes to each player feeling that he or she has an important role on the team, and fosters cooperation between team members. In contrast, athletes' appraisals that their coach typically is punitive in response to mistakes, gives the most attention to the most skilled players, and cultivates rivalry among team members constitute the ego-involving subscales of the PMCSQ-2. Contrary to what tends to be the case for the task and ego orientation scales of the TEOSQ or POSQ, the task and ego climate dimensions of the PMCSQ (Vers. 1 or 2) tend to be negatively correlated (i.e., r tends to range from –.3 to –.5). This suggests that the more a coach is deemed to encourage a focus on self-referenced competence (i.e., a task goal emphasis), the less likely he or she is viewed as promoting a concern with team members demonstrating high sport ability relative to others (i.e., an ego goal emphasis).

As assessed via the PMCSQ (1 or 2), views regarding the coach-emphasized motivational climate operating on particular sport teams have been found to be shared perceptions (Duda, Newton, & Yin, 1999), even though within-team variation among athletes does exist; that is, there is a significant interdependence in the perceptions held by athletes playing on one team when contrasted to the perspectives held by athletes across teams. Such findings suggest that it is important to separate group versus individual effects in analyses of the correlates of the motivational climate in sport.

Measures of the perceived motivational climate created by parents (White, 1996; White, Duda, & Hart, 1992) and, recently, peers (Vazou, Ntoumanis, & Duda, 2004, in press) have also been developed. As athletes' interpretation of and responses to sport are differentially shaped by divergent significant others as they move from childhood into their adult years, a consideration of these sources of the motivational climates surrounding athletes is paramount to a more comprehensive understanding of their socialization experiences. Currently though, there is a daunting challenge facing a researcher who wants to compare the relative significance of the motivational atmospheres created by coaches, parents, peers, and so forth, on athletes' personal goals and achievement patterns; that is, the existent instruments vary with respect to which situational structures are targeted and sometimes include hypothesized correlates of the climate within the measure of the construct itself (see Duda & Whitehead, 1998, for a more extensive discussion of this issue). As a result, if one significant other appeared to be more significant than another in an investigation of social influences on athletes' achievement striving, the researcher could not be sure whether these results are a function of the salience of the particular socializing agent *or* the composition and characteristics of the measures employed.

In general, research has revealed athletes' perceptions of the task-involving features of the climate (regardless of the socializing agent) to be low to moderately correlated with their degree of task orientation. The same holds true with respect to perceptions of an ego-involving climate and ego orientation (Duda, 2001). This literature, though, almost exclusively comprises cross-sectional studies. It is not possible to discern via such a methodology whether dispositional goals influence what athletes "pick up" in their social environments, and/or whether the climate operating has some impact on athletes' tendencies regarding how sport success is defined (Duda, 1993; Ntoumanis & Biddle, 1998). Longitudinal investigations that examine the interplay between goal orientations and perceptions of the motivational climate over time will contribute to the understanding of the independencies between individual differences and situational achievement goals in the athletic setting.

With an eye toward examining perceived situationally emphasized achievement goals in sport, some studies have determined athletes' views of the goal orientations held by significant others, such as parents (e.g., "My dad/mom thinks I am successful in sport when . . . "; e.g., Duda & Hom, 1993; Ebbeck & Becker, 1994). It is important to

keep in mind that although perceptions of an important social agent's goal orientations tend to correlate quite strongly with athletes' personal goal orientations, such perceptions are not highly associated with athletes' "take" on the overriding motivational climate created by the significant other in question (Duda, 2001). This is most likely because the perceived motivational climate reflects a composite view of various situational structures and characteristics that inform individuals about how success should be defined and competence construed (Ames, 1992a, 1992b).

Achievement goal frameworks (Dweck, 1999; Nicholls, 1989) hold that individuals, while engaged in achievement activities such as sport, can process those activities in a task- or ego-involved manner. In other words, while actively participating, athletes can be in a state of task or ego involvement (or neither state), perhaps fluctuating from one state to another. Furthermore, it is also assumed that the degree to which an athlete might be task- and/or ego-involved during a particular training or competition would be dependent on his or her dispositional tendencies and the motivational climate manifested (Dweck & Leggett, 1988).

With respect to the assessment of task- and ego-involved states, the achievement goal literature in sport has not progressed to the same degree as has been the case for dispositional goals and perceptions of the prevailing motivational climate. In an attempt to measures sport participants' goal states, some researchers have adopted the TEOSQ or POSQ (e.g., Hall & Kerr, 1997; Williams, 1998) and have tried to discern how athletes are defining success *at that moment*. Others (e.g., Harwood & Swain, 1998) have utilized single-item measures addressing whether the athlete is focused on reaching a high personal standard of performance (regardless of the competitive outcome) *or* on beating others (regardless of how they personally perform) before a competitive event. It has been argued, though, that the former assessment seems to tap "state" goal orientations, or the criteria underlying subjective success at a particular point in time, while the latter is primarily measuring a precompetition emphasis on a process versus outcome goal (Duda, 2001). Drawing from the thinking of Nicholls (1989), Dweck (1999), and others, it would seem that states of task and ego involvement are more complicated and multidimensional than merely what type of performance standard an athlete is emphasizing or the definition of success he or she is holding at a specific time. In our chapter reviewing advancements in the measurement of achievement goal constructs specific to the sport domain, Whitehead and I (Duda & Whitehead, 1998, p. 42) suggest that the

> assessment of task and ego involvement per se may very well entail the examination of a pattern of variables that represent task and ego processing and preoccupation . . . [and] the measurement of task- and ego-involved goal states would be dynamic and multifaceted. Variations in attentional focus, concerns about what one is doing and how one is doing, the degree of self-/other awareness and task absorption, level of effort exertion, etc., might constitute the constellation of symptoms reflecting task and ego goal states.

Moreover, it is not known at the present time whether task and ego involvement are independent states, or whether it is possible to be (at some level) in both a task- *and* ego-involved state simultaneously (for further discussions of this point, see Harwood, Hardy, & Swain, 2000; Treasure et al., 2001).

Clearly, to determine states of task and ego involvement as suggested earlier, innovative and probably multimethod assessment strategies are necessary. An additional methodological challenge would be for such tools to be suitable for implementation in the real world of sport training and competition, and not be disruptive to athletes' performance. This would be no small feat! As so often seems to be the case, the major question of interest in sport is how a particular performer is going to perform in a given contest (Hardy, 1997; Harwood et al., 2000), and the formulation of conceptually grounded, valid, and reliable measures of task and ego involvement reflects a valued endeavor. This is because achievement goal theory presumes that these goal states, coupled with the athlete's degree of confidence at the time, should be predictive of performance outcomes. However, being able to assess goal involvement effectively would also allow us to test theoretical predictions regarding the hypothesized impact of dispositional and situational goals (and their interaction) on motivational processes and should also provide better insight into the *quality* of the athlete's experiences *while engaged in sport* (Duda, 2001). The latter two benefits, in my mind, are additional important reasons for forging ahead in the pursuit of adequate and appropriate measures of goal states within the athletic milieu.

It should be noted, too, that the achievement goal literature in sport has called for the development of "state" measures of situational factors that could be influencing the perceived motivational climate and athletes' goal involvement during training or competition (Duda & Hall, 2001; Harwood & Swain, 1998). Thus, although there has been impressive advancement in the measurement of key achievement goal constructs in the sport domain (see Duda & Whitehead, 1998, for a review), there is much more work to be done in terms of the refinement of existing measures and the development of new assessment tools.

Theoretical Predictions and Major Findings

Goal Orientations

A plethora of studies have determined the correlates of individual differences in task and ego orientation in the sport domain. Taken in its totality, this work suggests that variations in goal orientations correspond to a multitude of variables reflecting athletes' beliefs about and cognitive, affective, and behavioral responses to sport. This is held to be because achievement goal orientations capture the reasons for engaging in an achievement activity such as sport, and the criteria underpinning judgments of successful performance (Pintrich, 2000).

The foremost achievement-related concomitants of sport goal orientations examined include sport participants' (1) beliefs regarding the causes of success and overall purposes of sport involvement, (2) strategy use in practice and competitive conditions, (3) perceived competence, (4) reported positive and negative affect, and (5) achievement behaviors. Narrative and systematic reviews have described this research in considerable detail. In this chapter, I highlight only the major findings (and where possible, the strength of those findings).

Numerous studies conducted in various countries, and involving diverse sport participants, such as high school athletes, physically challenged athletes, elite performers, and senior or master's level competitors, have ascertained the interdependencies between goal orientations and beliefs about the causes of success (e.g., Duda, 1989; Newton & Fry, 1998; Roberts & Ommundsen, 1996; Seifriz et al., 1992). In Nicholls's view (1989), dispositional goals and beliefs about success constitute two critical facets of individuals' personal theories of achievement in the context in question. A person's theory about sport, then, would comprise what he or she wants to achieve (i.e., goals or subjective definitions of success) and his or her conceptions of how the situation at hand operates (i.e., views regarding the determinants of success) (Duda & Nicholls, 1992). In Biddle and colleagues' (2003) recent systematic review, a moderate to large effect size (0.47) was found between task orientation and the belief that hard work and training lead to sport success. A similar effect size (0.45) emerged between ego orientation and the belief that the possession of high ability is central to achievement in the athletic setting.

In their review, Biddle and associates (2003) also examined 10 studies (involving over 2,000 participants) that determined the relationship of goal orientations and athletes' beliefs about what the wider purposes of sport involvement should be (e.g., Carpenter & Yates, 1997; Duda, 1989; Treasure & Roberts, 1994). With respect to predominant findings, task orientation tended to correspond to the view that sport participation should promote a work ethic–orientation to mastery (effect size = 0.56), foster social responsibility and citizenship (effect size = 0.32), and encourage an active lifestyle (effect size = 0.37). Ego orientation tended to be coupled with the belief that an important function of sport engagement is to enhance athletes' social status (effect size = 0.53).

Sport studies have looked at the interdependencies between goal orientations and reported learning- and performance-related strategy use. All in all, this line of work suggests that task goal orientation corresponds to more adaptive strategies, while the tactics

aligned with ego orientation are more short-term solutions or ways to protect one's sense of adequate ability. For example, Lochbaum and Roberts (1993) found a positive relationship between positive practice and competition strategies (e.g., trying to understand what the coach is conveying within his or her instructions), and task orientation. In research involving French university-level soccer players engaged in a shooting task, Thill and Brunel (1995) found the use of spontaneous and deep-processing strategies to be linked to a task orientation, while the use of more superficial strategies was associated with ego orientation. A series of investigations by Cury and his colleagues (Cury, Famose, & Sarrazin, 1997; Cury & Sarrazin, 1998) indicated that a strong ego orientation (coupled with low task orientation and/or low ability) corresponded to the tendency to reject or disregard objective, task-related feedback. As a performance-related strategy following success, or especially following failure situations, it is difficult to imagine how the latter feedback preference would contribute to the athlete's development!

Achievement goal frameworks (Dweck, 1986, 1999; Nicholls, 1984, 1989) hold that perceptions of ability will be more fragile when individuals are strongly ego-oriented in achievement settings such as sport. With respect to the linkages between task and ego orientation and perceived competence among sport participants, the research to date has examined these relationships in cross-sectional designs (e.g., Duda & Nicholls, 1992). As indicated in the results reported by Biddle and colleagues (2003) in their systematic review, small, positive associations between task and ego orientations and perceived competence tend to be observed (effect sizes = 0.25 and 0.24, respectively). Duda and Nicholls (1992), however, argued that such results are not surprising in the athletic setting. In "slice-in-time" studies of athletes currently involved in sport, one would be unlikely to find many study participants who were strongly ego-oriented and felt their ability to be low. Such individuals would probably have withdrawn from participation. What we do not know at this juncture is what happens to perceptions of competence over time among athletes whose goal orientations vary. Given the predictions of achievement goal theory, it would be particularly intriguing to follow any ensuing changes in perceived sport ability among highly ego-oriented athletes (especially those with a weak task orientation) who are experiencing performance difficulties (Duda, 2001).

A popular research direction in the goal orientation literature has been to determine the interdependencies between dispositional goals and reported positive affect in the athletic domain (e.g., Duda, Fox, Biddle, & Armstrong, 1992). In this research, positive affect is usually operationalized in terms of reported enjoyment, intrinsic interest, satisfaction, or scores on the positive affective responses contained in the Positive and Negative Affect Scale (PANAS). The systematic reviews to date (Ntoumanis & Biddle, 1999a; Biddle et al., 2003) have supported a moderate, positive relationship between task orientation and positive affect (effect size = 0.41 and 0.43, respectively), while no association with ego orientation has emerged.

The correspondence between dispositional goals and negative affect (typically defined with respect to anxiety, boredom, and/or composite negative affect, as assessed with instruments such as the PANAS) among sport populations has also been investigated (e.g., Duda & Nicholls, 1992; Hall & Kerr, 1997). In reviews of this literature (Biddle et al., 2003; Ntoumanis & Biddle, 1999a), a small, negative effect between task orientation and negative affect has been supported. Ego orientation has not been found to relate consistently to negative affect in the sport domain.

Finally, and quite surprisingly, since the prediction of behavior is seminal to the study of motivation, a limited number of investigations have determined the linkages between goal orientations and achievement-related behaviors, such as challenge seeking, performance, and persistence (e.g., Van-Yperen & Duda, 1999). Again, systematic reviews of this work reveal no meaningful associations with ego orientation, although a small, positive effect (effect size = 0.28) has emerged in the case of task orientation.

It seems that when the aim is to predict affective responses (whether positive or negative) and behavioral patterns, a determination of athletes' level of ego orientation alone is not particularly telling. Based on such findings, some researchers have argued (e.g., Hardy, 1997) that there is no evidence to suggest that ego orientation is problematic and/or should be curtailed in the athletic setting. In previous work, I have made three points in regard to such an interpretation of the literature. First, because achievement goal frameworks hold that perceived competence moderates the impact of ego goals on achievement-related responses, it is not surprising that athletes' ego orientation alone would be a significant negative predictor of achievement-related affect, cognitions, and behavior. Work is needed that examines the concomitants of ego goals (again, especially in a longitudinal manner) among athletes who are confident, *as well as* among those who have doubts about their competence. Second, when we look at other correlates of ego orientation (besides achievement-related responses) that provide insight into the meaning of sport and how the athlete is functioning (e.g., moral behavior, indices of well-being), ego orientation (in and of itself) tends to correspond to more negative responses and less adaptive perspectives. Finally, before we make any conclusions about the value or potential negative implications of task and ego goals among sporting populations, it is paramount that we also consider the findings that stem from the research on the correlates of task- and ego-involving sport environments.

In summary, the existent research on the correlates of sport goal orientations supports the premise that dispositional goals act as schemas reflecting the purposes underlying people's behavior and represent an integrated system of interpretations of cognitive and affective responses to achievement experiences (Kaplan & Maehr, 1999). Moreover, as purported by Nicholls (1989, 1992), a determination of athletes' degree of task and ego orientation provides insight into their wider views about the world of sport per se, such as their views regarding what it takes to get ahead in the athletic domain and what should be the consequences of sport participation. It would seem prudent that individual differences in goal orientation need to be considered in any systematic study of human motivation within sport settings.

The Perceived Motivational Climate

In contrast to research on the ramifications of dispositional achievement goals in sport, relatively less work has been conducted on the implications of the motivational climate created by significant others, such as the coach. However, particularly since the development of instruments to tap perceptions regarding the motivational atmosphere manifested in the athletic milieu, this is a growing body of literature (Newton et al., 2000; Seifriz et al., 1992). Moreover, it could be suggested that work on the concomitants of the motivational climate in sport has the most relevance to subsequent intervention efforts in this setting. Although the existing research is primarily correlational and cross-sectional in design, some experimental work on the motivational climate in both laboratory and field settings is evident in previous sport-related investigations (for reviews, see Biddle, 2001; Treasure, 2001).

Overall, the observed findings regarding the motivational climate in sport parallel what has been observed for goal orientations and/or are in accordance with theoretical predictions. For example, a task-involving climate has been found to correspond with greater enjoyment, satisfaction, and positive affect (e.g., Carpenter & Morgan, 1999; Ntoumanis & Biddle, 1999b; Seifriz et al., 1992; Treasure, 1993), the belief that effort is an important contributor to sport success (e.g., Seifriz et al., 1992; Treasure, 1993), subjective and objective performance (e.g., Balaguer, Duda, Atienza, & Mayo, 2002; Pensgaard & Duda, 2004), more adaptive coping strategies (Kim & Duda, 1998), and persistence (e.g., Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002). On the other hand, an ego-involving situation has been found to be associated with greater anxiety (Ntoumanis & Biddle, 1998b; Pensgaard & Roberts, 2000), the belief that the possession of ability is central to sport achievement (Seifriz et al., 1992), and dropping out of sport (e.g, Sarrazin et al., 2002). Although such findings are compelling and theoretically consonant, it is important to keep in mind that only the correspondence between perceptions of the motivational climate and positive and negative affect has been tested via

meta-analytic techniques (Ntoumanis & Biddle, 1999b).

As the preceding discussion implies, early research on achievement goals in sport primarily focused on either the implications of differences in goal orientations *or* variability in perceptions of the task- and ego-involving features of the environment. More contemporary work tends to incorporate both constructs into the study of achievement outcomes and motivational processes within athletic settings. With respect to this latter line of inquiry, the focal point initially was on identifying which construct (i.e., dispositional or perceived situationally emphasized goals) is the best predictor of the achievement-related cognitions, affect, and/or behavior of interest (e.g., Kavussanu & Roberts, 1996; Seifriz et al., 1992) in a cross-sectional design. In general, and aligned with the proposition of Duda and Nicholls (1992), when the dependent variable in question was more dispositional in nature (e.g., the athlete's level of self-esteem), goal orientations had greater predictive utility. If the aim of the study was to predict a more state-like or situationally specific variable (e.g., how much an athlete enjoys the sport at hand), then perceptions of the motivational climate accounted for more variance.

Aligned with the suggestions of achievement goal theorists (e.g., Dweck & Leggett, 1988), later research (e.g., Newton & Duda, 1999; Treasure & Roberts, 1998) considered the possibility that there may be an interplay between goal orientations and perceptions of the motivational climate. These cross-sectional studies tend to use regression analyses, with the interaction terms entered as predictors following the main effects for task and ego orientation, and task and ego climate variables. Reflecting a better test of the tenets of achievement goal frameworks (Dweck, 1999; Nicholls, 1989), a few of these investigations also included perceived ability as a main effect predictor variable and in interaction with personal and/or situational goals (e.g., Newton & Duda, 1999). All in all, this examination of potential interactions has provided support for the expected interplay between goal orientations and perceptions of the motivational climate (Dweck & Leggett, 1988) but more often than not, significant interaction terms do *not* emerge.

In explicating this lack of significance findings, researchers typically point to insufficient sample sizes and/or limited variability in the predictor variables (Duda, 2001). These type of investigations usually do not have adequate power to detect hypothesized differences. Studies marked by larger and perhaps more heterogeneous samples might help us become more aware of where, when, and how personal and situational achievement goals interact in the sport domain. Longitudinal and experimental protocols would provide even greater insight into the interplay between dispositional goals and the motivational climate(s) operating. Ideographic and qualitative methodologies should also prove informative in terms of this issue (e.g., see Krane, Greenleaf, & Snow, 1997).

MULTIPLE GOAL FRAMEWORKS: THE CASE FOR AVOIDANCE AND APPROACH GOALS

A promising extension of the dichotomous or two-goal models of achievement has been the recent consideration of multiple goals. In particular, Elliot (1997, 1999) and others (Middleton & Midgley, 1997; Skaalvik, 1997) have advocated a revision of the task–ego goal dichotomy by incorporating an approach and avoidance aspect of ego goals. Elliot's (1997, 1999) trichotomous achievement goal framework has had the most impact on contemporary research in sport. This framework holds that three distinct achievement goals are evident in achievement settings, namely, a *mastery or task goal*, in which the emphasis is on the development of competence and mastery; a *performance or ego-approach goal*, which entails a concern about the attainment of favorable judgments of normatively defined competence; and a *performance or ego-avoidance goal*, in which the focus is on avoiding the demonstration of normatively defined competence. The efforts of Elliot and colleagues (Elliot & Church, 1997; Elliot & Harackiewicz, 1996) to assess these three goals in academic contexts have laid the foundation for the formulation of trigoal orientation measures specific to sport (e.g., Cury, 2000; Cury, Laurent, DeTonac, & Sot, 1999).

The trichotomous framework makes a number of assumptions regarding the antecedents to achievement goal adoption (Elliot, 1999). *Personal factors* (i.e., achievement motives, beliefs about ability, competence perceptions) and *environmental factors* (i.e., the degree to which the context at hand is task- and/or ego-involving, and contributes to individual's wanting to demonstrate high competence or avoid demonstrating low competence) are presumed to influence which achievement goal is manifested. The achievement goals, then, are held to be more proximal determinants of ensuing achievement-related processes and outcomes (Elliot, 1999; Elliot & Church, 1997).

One of the important distinctions between the trichotomous model and the existing dichotomous achievement goal framework (Dweck, 1986, 1999; Nicholls, 1984, 1989) revolves around the proposed role of perceived competence. In the latter, perceived competence is assumed to moderate the relationship of ego orientation on achievement responses. With respect to Elliot's (1999) trichotomous framework, perceived competence (typically operationalized as performance expectations in this work) is held to be a precursor of the *valence* of the goal adopted; that is, whether *defined* in terms of task- or ego-related criteria, individuals with perceptions of high competence should be more likely to adopt approach (task and/or ego) goals. On the other hand, when perceived competence is low, individuals are expected to center on avoiding the demonstration of low ability (whether task- or ego-referenced).

Sport research testing assumptions regarding the hypothesized antecedents to goal adoption is in its infancy. However, correlational (Cury, Da Fonseca, Rufo, & Sarrazin, 2002; Cury et al., 1999; Halvari & Kjormo, 1999) and experimental (Cury, Da Fonseca, Rufo, Peres, & Sarrazin, 2003; Da Fonseca, Rufo, & Cury, 2001) studies have provided preliminary support for the assumed relationships. For example, Halvari and Kjormo (1999), in their work involving Olympic-level athletes from Norway, reported a correspondence between fear of failure and performance–ego avoidance goals. Cury and associates (1999) found perceptions of competence to be positively associated with mastery–task and performance–ego approach goals and negatively related to performance–ego avoidance goals in their research on young male French athletes. In the physical education context, perceptions of competence, incremental beliefs about sport ability, and perceptions of a task-involving climate emerged as positive predictors, and a perceived ego-involving climate emerged as a negative correlate of mastery–task goals (Cury, Da Fonseca, et al., 2002). Performance–ego approach goals were positively associated with perceived competence, entity beliefs about sport ability, and perceptions of an ego-involving climate, and negatively linked to incremental beliefs about sport ability. With respect to performance–ego avoidance goals, entity beliefs and a perceived ego-involving climate were positive predictors, while incremental beliefs and perceptions of competence were inversely related.

In an experimental protocol across four testing periods, Da Fonseca et al. (2001) assessed cognitive abilities said to be important to high sport performance among 12 young female athletes. The instructional set for the tests was varied to induce incremental or entity beliefs about the abilities being assessed, and negative versus positive test feedback was provided. Regardless of whether the feedback given was positive or negative, the incremental beliefs manipulation promoted a mastery–task goal focus. Moreover, an interaction between the entity beliefs manipulation and feedback also emerged. Specifically, if the athletes were told that the abilities assessed were fixed and received positive feedback, they were more likely to endorse a performance–ego approach goal. When they were in the entity experimental condition and were provided negative feedback, they tended to emphasize performance–ego avoidance goals.

The trichotomous model (Elliot, 1999) also makes predictions regarding the link between the three goals and motivation-related outcomes. One variable of interest has been intrinsic motivation. Intrinsic motivation is the most self-determined motivational regulation for engagement in an activity (Deci & Ryan, 1985). It has been found to be an important predictor of the quantity and quality of engagement in sport settings (Vallerand, 2001).

Because approach goals reflect a desire to strive for success and view achievement situations as a personal challenge, it is hypothesized that both mastery–task and performance–ego approach goals will correspond to greater intrinsic motivation. When centered on avoidance goals, however, the impetus is to avoid failing. Achievement situations are more likely to be viewed as threatening in this case, and the ensuing threat appraisals and anxiety are assumed to diminish intrinsic interest. Thus, it is predicted that performance–ego avoidance goals would be negatively associated with intrinsic motivation. Research by Cury and associates (1999) on 182 young French athletes and a replication sample of 140 young male athletes supported these hypotheses.

Drawing from the trichotomous model, Cury, Elliot, Sarrazin, Da Fonseca, and Rufo (2002) examined potential mediators of the effect of goals on intrinsic motivation. Young adolescent boys and girls engaged in a basketball dribbling task under one of the three experimental conditions: a mastery–task, a performance–ego, and performance–ego avoidance goal condition. Intrinsic motivation was operationalized with respect to how much time the youngsters spent practicing their dribbling during two free-choice periods. The boys and girls that were assigned to the performance–ego avoidance condition exhibited less intrinsic interest than the other two groups. Competence valuation (i.e., whether one considers the task valuable or important), reported task absorption, and state anxiety were all supported as mediators of the undermining of performance–ego avoidance goals on intrinsic motivation. Similar results were reported by Cury, Da Fonseca, et al. (2003).

In his more recent thinking, Elliot has assimilated the definition (i.e., centered on absolute/intrapersonal [task] or normative [ego] criteria) and valence (i.e., oriented toward the possibility of demonstrating high competence or avoiding the demonstration of low competence) aspects of goals to form a 2 × 2 achievement goal model (Elliot & McGregor, 2001). With respect to goal constructs, the major extension in the 2 × 2 framework is the consideration of what is termed a mastery (or task) avoidance goal perspective. In this case, the individual strives to avoid absolute and/or self-referenced incompetence.

According to Elliot (1999), the 2 × 2 model encapsulates the content universe of competence-based goals assumed to be pertinent in achievement settings. Revising the Achievement Goal Questionnaire of Elliot and McGregor (2001) designed to assess the four goals in academic settings, a 2 × 2 Achievement Goals Questionnaire for Sport has recently been developed (Conroy, Elliot, & Hofer, 2003). This instrument has been found to exhibit adequate factorial validity and temporal stability. Moreover, Conroy and colleagues found all the goals except the task (mastery) approach orientation to be significantly and positively correlated with fear of failure.

Clearly, the trichotomous and 2 × 2 approach–avoidance goal models hold promise for furthering insight into goals and motivational processes in the sport domain. However, several conceptual and measurement-related caveats have been raised in regard to early work on avoidance goals in the athletic domain (Cury, Duda, & Sarrazin, 2003; Smith, Duda, Allen, & Hall, 2002). To begin, questions exist regarding contemporary assessments of multiple goal orientations in sport (e.g., Conroy et al., 2003; Cury et al., 1999). What are the expected interrelationships between the goals? Dichotomous goal orientation measures (that have emanated from the work of Nicholls, 1989, in particular) assume task and ego orientations to be orthogonal. However, that interdependence is not necessarily supported when specifically task- and ego-approach sport goals have been examined (Conroy et al., 2003). Furthermore, the observed associations between the other goals tend to be less specified and potentially problematic. For example, in the work of Conroy and associates on the development of the 2 × 2 sport goal questionnaire, ego approach, task avoidance, and ego avoidance all were correlated low to moderate (r = .40–.54), while only the task approach and ego avoidance goals were independent. Does this make conceptual sense?

Another query relates to how avoidance goals, particularly ego avoidance goals, are operationalized in contemporary multiple goal measures (Smith et al., 2002). To date, the questionnaires designed to tap multiple goals in sport have drawn from assessment tools geared to the classroom context (e.g., Conroy et al., 2003; Cury et al., 1999). In their factor analysis of ego avoidance goal items emanating from popular academic scales, Smith and colleagues (2002) found these items to be multidimensional; that is, other constructs, such as impression management, seemed to be embedded in what is considered to be an ego avoidance goal orientation.

One final point that is worthy of further deliberation in sport research, particularly pulling from Elliot's (1999; Elliot & Church, 1997) trichotomous model, revolves around what additional insight is provided by taking into account ego avoidance goals when dichotomous (approach) goals, *along with* perceptions of ability, have already been tapped. Relevant to this issue but specific to the educational setting, we found that ego avoidance goal orientation captured variance above and beyond task and ego (approach) goals, perceived ability, and the ego approach and perceived ability interaction *only* in the case of test anxiety among university students (Duda, Hall, & Reinboth, 2004). The students' motivational regulations, entity–incremental beliefs, and effort regulation were significantly and more effectively predicted by the constructs and tenets rooted in dichotomous achievement goal frameworks (Dweck, 1986, 1999; Nicholls, 1984, 1989).

Moreover, although their valence might differ in terms of a concern with exhibiting or avoiding competence, we should keep in mind that the more traditional ego (approach) goal orientation and its ego avoidance counterpart have a lot in common. For example, in previous sport research, both have been found to correlate significantly with extrinsic motivation, entity beliefs about ability, and fear of failure. Thus, there seems to be a shared belief structure, mutual concerns, and less self-determined–more controlling regulations for engagement underlying these goals. Might it be that a considerable number (if not all?) of the high ego avoidance people in sport were once strongly ego approach-oriented and then came to doubt their competence and/or found themselves in situations that made them more afraid of the consequences of failing (than the joys and sense of accomplishment coupled with success)? Recent work by Papaiaonnou, Mylosis, Kosmidou, and Tsiglis (2004) on students engaged in sport-related drills provides preliminary evidence regarding the tenability of this proposition. Specifically, hierarchical multiple regression analyses indicated that the activation of ego approach goals subsequently mobilized ego avoidance goals during the activity. The reverse relationship was *not* supported. In a 12-month longitudinal study of task–ego approach and ego avoidance goal orientations in sport, and with respect to language classes, Papaioannou and associates (2004) also found ego approach goals at Time 1 to significantly predict ego avoidance goals at Time 2, but not vice versa.

IMPLICATION OF ACHIEVEMENT GOALS: BEYOND ACHIEVEMENT

An exciting feature of achievement goal research in the sport domain is that there has been an interest in predicting other responses and perspectives of athletes beyond those that are clearly achievement-related; that is, this literature sheds some light on the role of achievement goals with respect to the *quantity* and *quality* of athletes' motivation (Duda, 2001). The quantity of athletes' motivation is reflected in how they are performing and the degree to which they are invested in sport at a particular point in time. An examination of an athlete's competitive performance at a certain point of time is indicative of the quantity of his or her motivation. A consideration of the quality of motivation entails a broader and more long-term perspective. Is the athlete witnessing personal growth and positive development in terms of his or her psychological, emotional, physical, and moral functioning? Does the athlete want to (and is the athlete able to) persevere in sport and reach his or her potential?

Exemplifying this attention to the quality of athletes' achievement striving, sport studies have found dispositional and/or perceived situationally emphasized achievement goals to predict athletes' moral attitudes and behaviors (e.g., Duda, Olson, & Templin, 1991; Kavussanu & Roberts, 2001). In general, task goals tend to correspond to greater

sportspersonship, while ego orientation and/or a perceived ego-involving motivational climate has been associated with a stronger endorsement of cheating and aggression (Biddle et al., 2003; Duda, 2001). Other studies have found that achievement goals provide insight into health risks among athletic populations (e.g., disordered eating attitudes and behaviors, body image disturbances, and steroid/performance-enhancing substance use; Duda, Benardot, & Kim, 2004). Recent research has also examined the interplay between achievement goals and indicators of athletes' psychological welfare (e.g., Reinboth & Duda, 2004).

One important index of mental and emotional health is an individual's self-esteem (Harter, 1993). With respect to a hypothesized link between achievement goals and self-worth, Kaplan and Maehr (1999) argued that goal orientations may operate as "self-primes." When centered on meeting ego-oriented goals, there is a presumed heightened self-awareness and a concern with validating one's sense of self through the activity; that is, "when an ego goal is endorsed, it focuses attention on who one is, what one can be, or what one can do" (Duda & Hall, 2001, p. 422). In contrast, if geared toward meeting task-oriented criteria for success, the individual is held to be more centered on what he or she is doing.

A number of studies have examined the correspondence between sport goal orientations and athletes' reported self-worth. On the whole, task orientation tends to be positively correlated with level of self-esteem (see Duda, 2001, for a review). It has been argued that understanding the processes underpinning self-worth also entails a consideration of the degree to which an individual's self-esteem varies over time. Individual differences in exhibiting fluctuating self-worth have been termed "labile" (Butler, Hokanson, & Flynn, 1994) or self-esteem stability (Greenier, Kernis, & Waschull, 1995). In our research on a large sample of young British athletes (McArdle, Duda, and Hall, 2004), we attempted to distinguish these participants as a function of their goal orientations and other achievement-related characteristics (i.e., their motivational regulations and perfectionistic tendencies). Relevant to the issue at hand, cluster analysis revealed four groups of athletes. The first group exhibited moderately high task and ego orientation. The second group was marked by high task orientation and low ego orientation, while the third had high task orientation coupled with moderate ego orientation. A fourth group was characterized by moderately high ego orientation and low task orientation. The athletes who were classified in groups reporting high task orientation had the highest level of self-esteem. The high task-oriented and low ego-oriented athletes revealed the lowest degree of labile self-esteem, while the highly ego-oriented athletes who were not buffered by the possession of high task orientation reported the highest labile self-esteem.

All in all, the findings of McArdle and colleagues (2004) are aligned with the suggestions of Dweck (1999) and Kaplan and Maehr (1999), who argue that an ego goal focus should correspond to an exacerbated awareness of the self and a need to validate oneself through one's performances. With respect to this latter supposition, one possible explanation for why a predominant ego orientation was linked to more unstable self-esteem in the McArdle et al. study (2004) is that these athletes were evaluating themselves as people with respect to how they were doing in sport. In other words, their sense of personal worth was contingent on the demonstration of superior sport ability. Since sport competition makes it a daunting challenge for someone always to be the best, it is understandable why the self-esteem of highly ego-oriented athletes (who are not also highly task-oriented) would be more likely to go up and down.

A recent study by Reinboth and Duda (2004) provides preliminary evidence that is consonant with this argument. In this investigation, we examined the relationship of the perceived motivational climate (in terms of its task- and ego-involving features; Newton et al., 2000) and perceptions of ability to psychological and physical well-being among 265 male adolescent football and cricket players. Level of self-esteem, satisfaction/interest in sport, the physical exhaustion facet of burnout, and physical symptoms were measured as indices of the athletes' mental and physical welfare. However, the degree to which these athletes perceived their self-esteem to be contingent on sport performance was also ascertained.

Contingent self-esteem (as well as physical exhaustion and reported physical symptoms) was found to be positively predicted by perceptions of an ego-involving climate. Moreover, a significant ego-involving climate × perceived ability interaction emerged with respect to level of self-esteem. Aligned with the predictions of achievement goal frameworks (Dweck, 1999; Nicholls, 1989), reported self-worth was lower among the low perceived ability athletes participating in an environment that was perceived to be high in its ego-involving features. Satisfaction/interest in sport was positively related, and physical symptoms were negatively linked to perceived ability and perceptions of a task-involving atmosphere.

As can be seen in this short summary of recent research on aspects of the quality of athletes' sport experience, the work to date has been grounded in dichotomous models of achievement goals. An intriguing direction for subsequent studies would be to examine the implications of both approach and avoidance (task and ego) goals on athletes' moral functioning and well-being within the athletic milieu.

CONCLUSIONS AND FUTURE AREAS OF INQUIRY

Once the work on the implications of achievement goals on achievement-related processes in the academic–cognitive domains caught the attention of sport psychology researchers in the late 1980s, this line of investigation truly burgeoned. Indeed, achievement goal frameworks reflect a (if not *the*) major conceptualization underpinning sport achievement motivation research today. In this chapter, I have attempted to give the reader a feel for the directions this work has taken and the findings to date. In general, results are compatible with what has emerged in educational settings and aligned with theoretical predictions.

Although it is still a source of debate, and certainly not beyond the need for improvement, there have been considerable advancements in the measurement of achievement goal constructs specific to the sport domain. Overall, the measures of sport goal orientations and perceptions of the motivational climate created by coaches and other significant others have been repeatedly tested and tend to exhibit acceptable psychometric properties. An interesting and challenging avenue for future work in the sport milieu concerns the assessment of more dynamic states of goal involvement during training and competition.

In terms of the achievement goal literature as a whole, it is fair to say that sport investigations have led the way in terms of looking at the interchange between dispositional and perceived situationally emphasized goals on motivational processes and outcomes. Because both individual differences in sport goal orientations and perceptions of the motivational climate(s) surrounding sport participants play a role in how individuals view and respond to sport, it seems prudent that future work examine their interactive and potentially bidirectional influence in real-life settings over time.

Sport researchers have also extended the general achievement goal literature in other ways. They have taken the existing conceptual frameworks to exciting and relatively uncharted territories, such as contemporary work on athletes' moral functioning and well-being. In research examining the links between achievement goals and intrinsic enjoyment, anxiety, and self-appraisals, they are also moving toward integrations between achievement goal frameworks and other psychological theories of motivation, stress, and self-esteem/self-concept (Duda, 2001).

In closing, it is important for all motivation psychologists to recognize that a great deal of intriguing, insightful, and informative work has been done on achievement goals in the sport domain. The future holds much promise for this trend to continue.

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CHAPTER 19

Work Competence

A Person-Oriented Perspective

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In this chapter, we describe the person components and processes involved in the development and expression of competence in the workplace. First, we provide a provisional definition of "work competence" in the context of maximal performance. Next, we outline the major trait and other stable disposition components and processes by which these factors interact to affect work competence. Third, we address the role of situational influences in terms of their effects on both the development and expression of workplace competence, and propose an illustrative model of work competence that takes account of both person and situational influences. Finally, we consider some broad person and contextual issues in the domain of work competence, including the changing nature of work and adult aging.

The process of defining competence in the workplace requires consideration of two issues. First, unlike competence in other life arenas, competence in the workplace typically refers to the potential for, or demonstration of, coordinated actions that accomplish *organizationally valued* tasks, such as installing equipment, planning conferences, resolving customer problems, or creating or selling a product; that is, the definition of competent performance critically depends on the job and work role demands. A restaurant supervisor may be judged competent if food is delivered promptly, even if he or she cannot operate the cash register quickly.

Second, competence is not synonymous with performance. Performance is influenced by a number of factors, including stable trait-like factors internal to the individual (e.g., abilities and skills), external factors (e.g., broken equipment), and transitory factors (e.g., temporary distraction because of an earlier argument with a spouse, or lack of skill with a new computer system). An individual may perform poorly due to incompetence, lack of motivation, and/or environmental factors that impede the effective expression of competence. "Competencies," defined by Landy and Conte (2004; also see Kurz & Bartram, 2002) as "sets of behaviors, usually learned by experience, that are

instrumental in the accomplishment of various activities" (p. 116) refer to the integration of individual differences attributes for the purpose of context-specific objectives. In this chapter, we focus on the trait and trait-like factors that contribute to the development of work competencies and competence, and then consider some of the other factors that influence the expression of competence in job performance.

Our explication of competence in the workplace and emphasis on person factors may be further clarified by considering competence in terms of the broader distinction between maximal performance and typical behavior. In the following section, we delineate the differences between these contexts and their implication for defining competence in the workplace.

MAXIMAL PERFORMANCE AND TYPICAL BEHAVIOR

Cronbach (1949) was perhaps the first psychologist to call attention to two different contexts for human behavior. Although Cronbach was most interested in the context of psychological testing and assessment, the distinction is important in academic achievement and work contexts. "Maximal performance" refers to the individual's capabilities. It represents what the individual "can do" when all internal states (amount of sleep, lack of distraction, etc.) are optimal for the individual to focus his or her attention to the task at hand. When psychologists assess aptitudes or abilities, their goal is to elicit the maximal performance of the individual, so that an accurate attribution of the individual's capabilities is made.

In contrast, "typical behavior" refers to what the individual is likely to do, or prefers to do, on a day-to-day basis. When one considers academic aptitude testing, such as is done with the Scholastic Aptitude Test (SAT) or Graduate Record Examination (GRE), examinees are generally willing to expend maximal effort—mainly because the rewards for good performance are obvious and tangible. However, if faced with taking the SAT every day for a year, with no clear rewards for good performance or punishment for poor performance, many individuals would likely reduce their level of effort during the test administrations. When psychologists assess personality and interest constructs, they usually ask what an individual likes to do, prefers to do, or usually does in various contexts. All of these conditions reflect typical behaviors or, roughly, what the individual is most likely to do (for extensive discussions of these issues, see Ackerman, 1994, 1997).

From this perspective, when we set out to define work competence, we ordinarily refer to the individual's maximal performance rather than his or her typical behavior, since we are, at least initially, most interested in what the individual can do. However, many influences combine to dissociate what the individual can do and what he or she actually will do, and that is the source of additional discussion in this chapter. First, we consider the determinants of maximal performance.

DISTAL DETERMINANTS OF WORK COMPETENCE

Industrial–organizational psychologists often characterize work competence as a complex function of four broad components—knowledge, skills, abilities, and "other" attributes (denoted KSAOs). Our conceptualization takes a similar but not entirely identical categorization. We consider the following components: abilities, knowledge and skills, motivation, personality, and self-concept (which includes self-confidence and self-efficacy). Each of these is treated in turn.

Abilities

Starting about 100 years ago (e.g., Binet & Simon, 1911/1915; Spearman, 1904) and continuing to the present day, differential[1] psychologists and educational psychologists have sought to identify the structure and function of human intellectual abilities. Both historically and pragmatically, there have been two major camps in the debate over the nature of human intelligence. Followers of Spearman (e.g., Jensen, 1998) have emphasized that a single general intellectual ability (denoted *g*) takes up the major share of individual differences variance across just about any domain of cognitive or intellectual functioning. In contrast, followers of Thorndike (e.g., see Thorndike, Bregman, Cobb, &

Woodyard, 1927), Thurstone (1938), and others have deemphasized the importance of *g* and have focused instead on other lower order factors of intellectual abilities (e.g., spatial, verbal, numerical). Over the past 40 or 50 years, however, the consensus view among researchers in the field is that there is a hierarchy of human abilities, in that lower order abilities exist but are themselves correlated with one another, thus implying that a general factor of intelligence exists and accounts for roughly 50% of the variance in human abilities (e.g., see Carroll, 1993; Vernon, 1950).

However, a developmental perspective, the approach outlined first by Hebb (1942) and later expanded by Cattell (1943), provides an important identification of two major components of human intelligence. The first component, identified as general fluid intelligence (*Gf*) by Cattell, is associated with abstract reasoning, memory, and the cognitive processes associated with solving novel questions. This class of abilities is thought to be most highly associated with biological and genetic factors. Developmentally, *Gf* peaks in late adolescence or early adulthood and declines throughout the rest of adulthood. In contrast, the second major component, called general crystallized intelligence (*Gc*) by Cattell, represents the accumulation of educational and experiential knowledge and skills. Although *Gf* peaks early in an individual's work life, *Gc* often is not only maintained well into middle age but may also continue to develop until relatively old age. Typically, *Gc* is assessed with tests of vocabulary, information, and fluency, but the conceptual representation of *Gc* (e.g., see Ackerman, 1996; Cattell, 1957) is that it encompasses a wide array of academic, vocational, and avocational (e.g., hobbies) knowledge. In most studies of adult intellect, estimates of *Gf* and *Gc* are correlated with one another, but the correlation does not reach levels that would indicate that one general ability is isomorphic to the other (e.g., Horn, 1989; see also Ackerman, 2000, for an empirical example).

Gf and Work Competence

In colloquial terms, individual differences in *Gf* are most important as an indicator of the ability to learn. Measures of *Gf* are often good predictors of learning and academic achievement for adolescents and young adults. When the learning or training environment is novel and challenging, differences in *Gf* can be expected to play an important role in determining the aptitude of individuals for acquiring the knowledge and skills necessary for performing jobs, especially those that are complex, and those that involve substantial continuous investment of attentional resources, such as that of a pilot or an air traffic controller (e.g., see Ackerman & Kanfer, 1993). In this context, *Gf* represents a rough indicator of "potential" for developing competence, and also an indicator for predicting day-to-day competence of individuals in cognitively challenging jobs.

Gc and Work Competence

The role of *Gc* in determining work competence is much more complicated than the role of *Gf*. In the broad context of *Gc* as the entire repertoire of knowledge and skills of the individual, *Gc* is critically important to work competence, because it represents whether the individual has the declarative and procedural knowledge necessary to carry out many job tasks. Indeed, some investigators have suggested that the job knowledge component of *Gc* is a more important determinant of job performance than individual differences in *Gf* (e.g., see Ackerman, 1996; Hunter, 1983). The general sense of this orientation is that, for most individuals, it is both easier and more effective to solve a problem if the solution has been previously learned (i.e., through *Gc*) than to derive the solution from a novel information processing approach (which would be a *Gf*-determined activity).

Investment of Cognitive Resources

Cattell (1971/1987) and, later, Ackerman (1996) have suggested that development of *Gc* is a function of the level of investment of *Gf* resources over extended periods of time; that is, according to Cattell, individual differences in *Gc* arise from differences in the direction and intensity of cognitive effort. For example, whether someone pursues a medical degree, a PhD in psychology, an apprenticeship at carpentry or auto repair, or learns to sell cars for a living is determined by the direction of his or her investment of intellectual effort (i.e., which profession to enter) and the intensity of effort (whether he or she devotes a great deal of effort over an extended period of time or invests little effort, or invests effort over a brief time period). Simonton (1988) and Ericsson, Krampe, and Tesch-Römer (1993) have suggested that in order to become an "expert" in many fields of work, 10 years or so of extended cognitive effort need to be expended. The investment includes pursuit of academic degrees and active engagement in on-the-job performance. The determinants of the direction and intensity of intellectual effort include individual differences in *Gf* but also appear to involve a relatively small set of nonability traits, which we discuss in the next sections.

MOTIVATIONAL TRAITS AND WORK COMPETENCE

Two major aspects of motivational traits are central to the determination of work competence: interests and general motivational tendencies. Interest traits *usually* refer to the direction of investment to which an individual is more or less oriented. As early as the early 1900s, psychologists determined that there is indeed a substantial association between interests in a particular subject matter or profession, measured during adolescence, and the ability or skill for that activity assessed years later. Thorndike (1912) summarized the results of an early study as follows:

> A person's relative interests are an extraordinarily accurate symptom of his [or her] relative capacities. . . . Either because one likes what he [or she] can do well, or because one gives zeal and effort to what he [or she] likes, or because interest and ability are both symptoms of some fundamental feature of the individual's original nature, or because of the combined action of all three of these factors, interest and ability are bound very close together. (cited in Hollingworth, 1929, p. 203)

Assessment of interests has proceeded along two major lines from the 1920s to the present day. In the first approach (exemplified by Strong, 1945), interests are identified through examination of answers to a vast array of questions about individual likes and dislikes. Empirical scoring is used to compare this array of answers to those of job incumbents across many different occupations, in order to find the occupations where job incumbents and the individual examinee have the most similar attitudes and preferences. In contrast, the second approach (e.g., Guilford, Christensen, Bond, & Sutton, 1954; Holland, 1959; Roe, 1956) depends on a theoretically and empirically derived factor structure of interests, which generally is refined to a half-dozen or so different occupational orientations (e.g., in Holland's model, these are realistic, investigative, artistic, social, enterprising, and conventional). Jobs or occupations can also be classified in terms of these factors, so that the end result is a parallel typology of jobs and individual interest profiles. With information from an individual's interest assessments, a vocational psychologist can determine the direction of the individual's orientation (whether toward some domains or away from other domains). These assessments are generally quite effective in identifying the *direction* of interest, they often ignore the *intensity* of interest (though see Holland, 1973, for a theoretical discussion of occupational level, in terms of occupational interests). This brings us to a consideration of motivational intensity for work performance.

Theories and assessment of general motivational traits have generally been developed in parallel to theories and assessment of interests. Perhaps the most well known and most widely investigated motivational trait that refers directly to intensity is the construct of need for achievement (*n* Ach) proposed by Murray and his colleagues (Murray et al., 1938). Murray defined *n* Ach as reflecting the following desires:

> To accomplish something difficult. To master, manipulate or organize physical objects, human being, or ideas. To do this rapidly, and as independently as possible. To overcome obstacles and attain a high standard. To excel one's self. To rival and surpass others. To increase self-regard by the successful exercise of talent (p. 164)

Murray also identified a set of actions associated with high levels of *n* Ach as follows:

> To make intense, prolonged and repeated efforts to accomplish something difficult. To

> work with singleness of purpose towards a high and distant goal. To have the determination to win. To try to do everything well. To be stimulated to excel by the presence of others, to enjoy competition. To exert will power; to overcome boredom and fatigue. (p. 164)

Clearly, this definition of *n* Ach is synonymous with an *approach-oriented motivational intensity*, whether through achievement in isolation or achievement by performing better than others (e.g., competitive excellence). Furthermore, the conceptualization of *n* Ach can be represented as an additional component of the structure of intellectual interests discussed earlier (though *n* Ach is not necessarily limited to academic or intellectual achievement orientation). Thus, an individual could have high, moderate, or low *intensity* of interests in any of the half-dozen or so occupational themes described by Holland (1973). For example, the individual could have a dominant direction of interest in artistic activities but have only a low intensity interest to achieve in pursuit of success in the field of art. Conversely, the individual could have a weak orientation to a particular occupational theme, such as investigative interests (which are associated with scientific pursuits), but have a high desire to succeed or compete in attaining success in the field.

Other needs identified by Murray play a role in development and expression of work competence, but the role of these needs in work competence have received less attention. For example, need for affiliation (*n* Aff) may have important consequences for an individual's efforts with respect to work team or group performance, and thus affect how the individual develops competence to be valued by team members.

In the decades of research that followed Murray's seminal work, numerous theoretical investigations (e.g., see Atkinson, 1983) and assessment measures have been designed to assess the broad construct and various hypothetical components of *n* Ach. Most notable among the assessment measures is the Thematic Apperception Test (TAT), which has been subjected to substantial empirical research by McClelland and his colleagues (see Spangler, 1992, for a review). Other measures include the self-report instruments by Mehrabian (1969) and Helmreich and Spence (1978).

Along the way, it has become clear that *n* Ach is a complex manifestation of three or more related traits (e.g., Elliot & Harackiewicz, 1996). In the organizational domain, for example, Kanfer and Heggestad (1997; see also Heggestad & Kanfer, 2000) identified three major factors underlying the broad construct of achievement motivation. The Motivational Trait Questionnaire (MTQ) provides an assessment of approach-oriented motivation (desire to learn and mastery), and a desire for competitive excellence (competitive excellence and other-referenced goals). The MTQ also provides an assessment of two avoidance-related motivational traits (anxiety in performance contexts and worry in performance contexts), which are distinct from, and relatively uncorrelated with *n* Ach (i.e., the factor defined by the desire to learn and mastery scales; see Heggestad & Kanfer, 2000). Approach-oriented general motivational tendencies represent what has been referred to as a "trait complex", that is, an amalgamation of related but differentiable constructs that together may be important determinants of knowledge and skill acquisition, and also serve as determinants of day-to-day investments of cognitive effort in task performance.

Although Guilford (1959) conceptualized all individual differences (e.g., temperament, attitudes, interests, needs, physiology, morphology, and aptitudes) as aspects of personality, we find that it is useful to consider temperament as a separable domain of individual traits. We next consider the role of temperament or personality traits in the context of work competence.

PERSONALITY TRAITS AND WORK COMPETENCE

Hollingworth (1929) described the importance of personality traits for work performance, as follows:

> If aptitude and interest determine what they [employees] do, if competence sets limits to their achievement, there is still to be considered their manner or mode of performance. Two workmen of equal general competence, with identical degree of special skill, will nevertheless differ in temperament and character. One will work calmly, the other more excitedly; one will be steady, the other erratic. (p. 177)

In the past 90 or so years of personality theory and assessment research, there has been a plethora of hypothesized personality traits that may be related to both current work competence and also the development of knowledge and skills over a lifetime. A full review of this domain of research and practice is beyond the scope of this chapter (for details, see Kanfer, Ackerman, Murtha, & Goff, 1995). Here, we review some of the more salient personality traits related to work competence and development.

Early Research

In the early 1900s, two different methods of personality assessment were used to evaluate suitability of individuals for particular jobs. Researchers at the Carnegie Institute of Technology (see Thurstone, 1952, for a review) developed a technique for interviewing job applicants that was used to develop global estimates of suitability. The other method was the use of paper-and-pencil questionnaires to assess a variety of personality traits. This method was exemplified by Woodworth's Personal Data Sheet (see Franz, 1919), which was administered to a large number of conscripts during World War I. The goals of these two methods were somewhat different: The Carnegie group focused on normal personality traits, while the Woodworth approach focused on detecting personality-related psychiatric disorders. The Woodworth approach can be considered an attempt to determine which individuals are unsuitable for a wide range of jobs. Individuals diagnosed as having psychopathological levels of personality traits (such as poor emotional stability) might be considered generally unfit for military service. Later developments with clinical scales (such as the Minnesota Multiphasic Personality Inventory) have been used for similar purposes, such as screening for sensitive jobs (in the military, police, transportation, and security occupations).

In contrast, the Carnegie group's approach was more specific, in that it represented early efforts for matching the personality characteristics of the individual with the specific characteristics of the job. For example, an individual high on extraversion would be considered to be more likely to develop competence in a life insurance sales job but would perhaps be a poor match to a job of book author. In this sense, there was no optimal pattern of personality traits in general, but a greater or lesser match between an individual's traits and the nature of the job to be performed. Later developments of ascendence–submission scales and dominance scales were used for evaluating individual suitability to jobs in sales or management (see Kanfer et al., 1995, for a review).

Five-Factor Model

Through the middle of the 20th century, researchers sought to refine the large corpus of personality traits to a smaller set of five broad factors of normal personality, representing Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (e.g., Goldberg, 1993; Tupes & Christal, 1961). This approach has been termed the five-factor model (FFM) of personality. Although there is substantial controversy regarding whether or not the FFM is a reasonably complete depiction of the structure of personality (e.g., see Block, 1995), much of the applied research on personality–work competence issues during the past 20 years has focused on the relations between these five factors and job performance. With a few exceptions, this approach can be seen as an extension of the Woodworth approach (which focused on overall suitability for work) to the normal population; that is, most FFM-inspired research has examined broad personality predictors of job performance, in the hope of finding stable predictors across many different job classes.

Over the past two decades, the FFM has been used to reexamine the relationship between personality and job performance. Beginning with the meta-analysis by Barrick and Mount (1991), over a half-dozen meta-analytic studies on personality–performance relations have been conducted (see Kanfer & Kantrowitz, 2002). Results of these studies show several significant relations across a range of criterion measures. Of the five fac-

tors, Conscientiousness has been found to exhibit the strongest and most pervasive relation to overall job performance, with estimated criterion-related validity (i.e., the correlation between the predictor variable and a performance criterion) coefficients ranging from .12 to .31, followed by Extraversion (criterion-related validities ranging from .09 to .16) and emotional stability (validities ranging from .08 to .22), though the nature of these relations to performance is generally weaker and inconsistent across job categories and criterion measures. Findings on Openness to Experience have been somewhat mixed, with validities to job performance ranging from –.01 to 27. Overall, the predictive validities for broad personality traits on job competence and job performance are generally lower than validities obtained for general cognitive ability.

Assessment

In many ways, research on the personality determinants of work competence has not made much theoretical progress since the early efforts of Woodworth and others, who focused on suitability for work. The essence of the FFM research in work domains is that, *ceteris paribus*, it is better for a worker to be more conscientious and less neurotic. In contrast to the vocational interest research and theory domains, there has been relatively little work on delineating the best match of personality traits to specific job categories (though for exceptions, see, e.g., Vinchur, Schippmann, Switzer, & Roth, 1998). Although an approach toward matching jobs and personality traits seems to have great intuitive appeal and is supported in the context of overlap between interests and personality traits (e.g., see Holland, 1973), there is much more research needed in this area.

SELF-CONCEPT, SELF-CONFIDENCE, AND SELF-EFFICACY

In addition to abilities, interests, and personality traits, self-concept and self-confidence represent another major source of relatively stable individual differences characteristics related to work competence and job performance. "Self-concept" usually refers to the individual's evaluation of his or her ability or competence across a wide range of domains, such as academic (e.g., math, spatial, or verbal domains), physical skill (e.g., strength or speed), physical attractiveness, and interpersonal skills. Self-concept can be a normative construct (e.g., "I can read tables and figures better than most others my age"), or it can be an absolute scaled construct (e.g., "I am skilled at getting along in a team work setting"). Where self-concept is generally domain-specific, self-confidence may be a more general construct. Individuals can have high, medium, or low levels of ability to carry out tasks, in a fashion that is functionally independent from self-concept (though, in practice, these are generally substantially positively correlated). However, whereas self-concept is generally stable, self-confidence may fluctuate markedly as a function of environmental conditions or other external variables (e.g., if the individual is sleep-deprived or under stress, he or she may present much lower self-confidence than when the he or she is not sleep-deprived or under stress). Self-efficacy, in this context, is a narrower construct than self-confidence, in that self-efficacy is conceptualized as confidence in performance, specific to a particular time and situation.

In contrast to abilities (where higher levels of ability are associated with higher levels of work competence), however, the relationship between self-concept-type variables and work competence is somewhat more complex. The reason for this complexity has to do with the motivational consequences of high and low self-concept, confidence, or efficacy, and for accurate versus inaccurate self-assessments. At a simple level, self-concept, confidence, and efficacy may be threshold variables that determine whether the individual chooses even to engage a task. On the one hand, if the goal is to run a mile in less than 4 minutes, many individuals with low self-efficacy may not even adopt the goal, and thus not fully devote effort to goal accomplishment. In this sense, having a self-efficacy that is too low for goal accomplishment may lead to disengagement from the task. On the other hand, if self-confidence is high, initial task engagement is a much higher probability outcome.

Current theory and conventional wisdom tell us that self-concept develops in a feed-back-feedforward fashion during development, in concert with the individual's experiences. When a child successfully completes math tasks or reading assignments, one can expect that self-concept is incremented in the respective domain. Increments in self-concept also are often thought to yield increases in task-specific interests—mainly because individuals enjoy engaging in tasks in which they usually have success (e.g., Holland, 1973). Increments in self-concept and interests, in turn, raise the probability that the individual will orient toward new tasks in the same domain, creating a positive cycle of task accomplishments (which similarly yield increments in task competence), increasing self-concept and increasing task interest. Conversely, individuals who struggle to complete a task, or who fail at the task, especially repeatedly, will be expected to have a lowered self-concept, leading to a lower level of interest in engaging such tasks in the future. This pattern of experiences and changes can have the pattern of a vicious circle, ultimately resulting in a situation in which the individual has sufficiently low self-efficacy that he or she will refuse to engage in particular kinds of tasks. Ordinarily though, if the individual encounters failures across only some domains but successes in others, interests and self-concept are expected to become increasingly differentiated over the course of child and adolescent development.

SUMMARY OF TRAIT DETERMINANTS OF WORK COMPETENCE AND A DEVELOPMENTAL FRAMEWORK

There are many potential trait determinants of work competence, both from a developmental perspective and from a day-to-day work competence perspective. Developmentally, *Gf* represents the basic abilities necessary for initial acquisition of *Gc* knowledge and skills. Through educational and experiential influences, interests and self-concept develop and differentiate, which in turn, lead to differential engagement in the development of specialized *Gc* domain knowledge and skills. By the time individuals reach adulthood, they tend to have a relatively coherent pattern of *Gc*, interests and self-concept. In addition, some personality traits tend to be more or less associated with particular domains of *Gc* knowledge and skill, and with vocational interests. The communality of various ability and non-ability traits has suggested the existence of a small set of *trait complexes*, that is, groups of traits that are themselves correlated. More specifically, these groups of traits appear to be facilitative or impeding of the acquisition of domain-specific knowledge and skills. To date, we (Ackerman & Heggestad, 1997) have identified at least four broad trait complexes that involve key ability, personality, interest, and self-concept traits. These trait complexes are illustrated in Figure 19.1, and include the following:

1. *Social trait complex*. The social trait complex includes enterprising and social interests, and also extraversion, social potency, and well-being personality constructs, but not any intelligence traits. It is important to note that the social trait complex is essentially orthogonal (uncorrelated) with traditional measures of academic intellectual abilities. There are insufficient data to evaluate whether individuals who score high on this trait complex also have high levels of social or interpersonal intellectual abilities—mainly because there are no validated measures of social or interpersonal intelligence. However, we suggest that such constructs are likely to be related to this constellation of personality and interest constructs.

2. *Clerical/conventional trait complex*. The clerical/conventional trait complex includes conventional interests and similar personality traits, such as conscientiousness, traditionalism, and control. This complex appears to be related to perceptual speed ability—in that individuals who score high on this trait complex tend to prefer high levels of structure in their work environments. This trait complex is also substantially associated with self-concept measures of personal organization and self-reported capabilities to perform well on highly structured and relatively straightforward tasks.

3. *Science/math trait complex*. The science/math trait complex is associated with investigative and realistic interests, and with self-concept in the areas of science, technology, and math. Individuals with high scores on these constituent traits also tend to have substantially higher scores on *Gf* ability

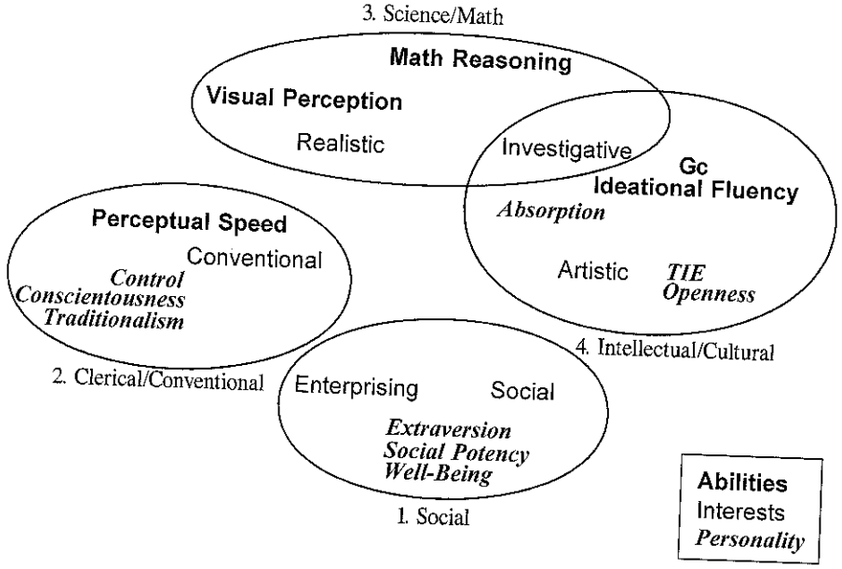

FIGURE 19.1. Trait complexes, including abilities, interests, and personality traits, showing positive commonalities. Shown are (1) social, (2) clerical/conventional, (3) science/math, and (4) intellectual/cultural trait complexes. Ability traits are in **bold**, interests in roman, and personality traits in *italic*. From Ackerman and Heggestad (1997, p. 239). Copyright 1997 by the American Psychological Association. Reprinted by permission.

measures. Interestingly, this trait complex is not associated with any of the traditional measures of personality (see Ackerman & Heggestad, 1997, for a review)

4. *Intellectual/cultural trait complex.* Similar to the science/math trait complex, the intellectual/cultural trait complex is associated with investigative interests. However, the dominant character of the trait complex is that it is highly associated with the educational and experiential aspects of intelligence (*Gc*), artistic interests, and the openness to experience personality construct. In addition, this trait complex is highly associated with a construct called Typical Intellectual Engagement (TIE; see Ackerman, 1994; Goff & Ackerman, 1992). This construct straddles the domains of ability and personality, and reflects a tendency to orient toward intellectual activities (reading for pleasure, attending cultural events, etc.), and away from nonintellectual activities. Self-concept for verbal abilities, general knowledge, and domain-specific knowledge are also substantially positively associated with this trait complex.

PPIK

A theoretical framework that pulls together the previous discussion of determinants of work competence and the notion of trait complexes is shown in Figure 19.2. The framework, called PPIK, for intelligence-as-process, personality, interests, and knowledge, involves a developmental cascade from *Gf*-type abilities (intelligence-as-process) to general knowledge (*Gc*) interacting with personality and interest trait complexes to yield different orientations toward or away from accumulating domain-specific knowledge and skills. The social and clerical/conventional trait complexes represent negative influences on development of academic-type knowledge domains, but positive influences on interpersonal and conventional knowledge and skill domains, respectively. In contrast, the science/math trait complex, along with direct influences of *Gf* and *Gc*, show positive associations with the development of knowledge and skills in scientific, technological, and mathematics domains. The intellectual/cultural trait complex, along with *Gc*, has a positive association with development of knowledge and skills across a relatively wide range of domains, such as in the arts, humanities, and social sciences. Support for portions of this framework have been obtained in studies of college students (e.g., Ackerman, Bowen, Beier, & Kanfer, 2001), and of adults from 18 to 70 years of age (e.g., see Ackerman, 2000; Ackerman & Rolfhus, 1999; Beier & Ackerman, 2001, 2003).

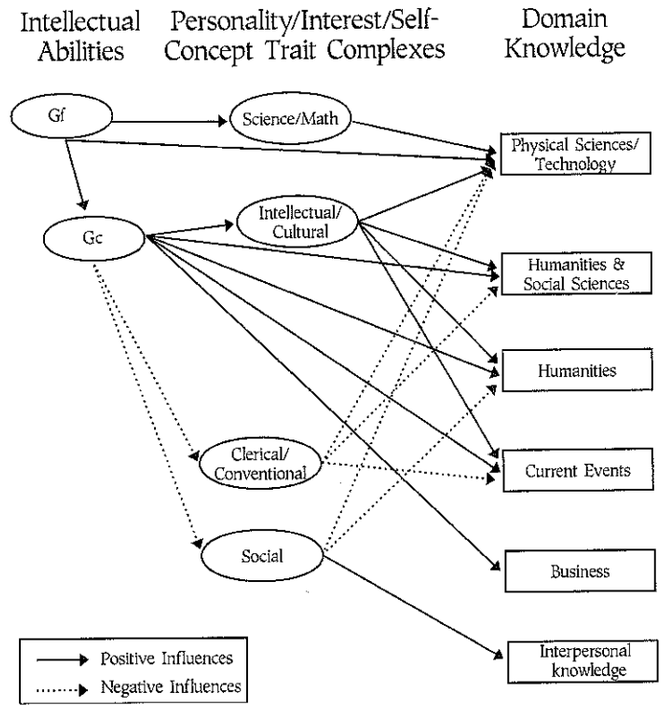

FIGURE 19.2. An illustration of PPIK theory. Shown are fluid intelligence (*Gf*) representing intelligence-as-process, crystallized intelligence (*Gc*) representing intelligence-as-knowledge, four trait complexes, composed of personality, interest and self-concept variables, and a set of knowledge domains. Positive influences are indicated by solid arrows; negative influences, by dotted arrows. Adapted from Ackerman, Bowen, Beier, and Kanfer (2001). Copyright 2001 by the American Psychological Association. Adapted by permission.

SITUATIONAL INFLUENCES ON WORK COMPETENCE

Aside from educational and formal on-the-job training aspects of the work context, other elements of the work situation give rise to differences in work competence. Particularly important are work role demands, work-related goals, and organizational/work setting culture. We briefly discuss each of these below.

Work Role Demands

On the job, work role demands are imposed by the organization, by members of the work unit, and by the constituencies served. These demands exert specific influences on the development of work-relevant knowledge and skills. In secretarial work, for example, the introduction of computers in the office led to significant changes in work role demands for computer knowledge and word-processing skills, and to the development of organizational training programs to help employees develop competence in these areas. Work role demands can be general (e.g., learning to use Microsoft PowerPoint software) or specific (learning to use a company-specific software program or hard-

ware). These elements of knowledge and skills can be learned to a minimal level, or the individual can attempt to develop a high level of mastery. Although individual differences in motivation control (e.g., see Kanfer & Heggestad, 1997) and mastery orientation (Heggestad & Kanfer, 2000) are likely to be related to the level of skill developed, other situational factors (such as time allocated on the job) will likely set a limit on the opportunity to develop particular skills.

One aspect of work role demands that has received increasing attention during the past two decades pertains to the influence of work structure on the nature of knowledge and skills required for job performance. In the context of teamwork, for example, nontechnical or interpersonal skills may be required to facilitate coordination among team members. Several studies (e.g., Barrick, Stewart, Neubert, & Mount, 1998; Neuman & Wright, 1999; also see Kichuk & Weisner, 1998) indicate that individual job performance in the team context is positively associated with conscientiousness, emotional stability, and agreeableness. From a finding that personality traits have significant criterion-related validities for team process dimensions of job performance, we speculate that the ability and interest variables associated with the social trait complex may prove fruitful for investigating broad person determinants of work team process competence.

Work-Related Task Goals

Task goals represent context-specific objectives for action and the parameters by which to define goal accomplishment. Consistent with goal theories, task goals govern the direction, intensity, and persistence of action. Numerous studies have supported the proposition that task-specific goals, as imposed by the organization, or by a supervisor, can substantially influence learning and performance (see, Locke & Latham, 1990, for a review). More specifically, organizational goal-setting studies indicate a positive relation between goal difficulty and specificity on task performance, particularly among simple tasks and during later phases of skill learning (see Wood, Mento, & Locke, 1987, for a review).

In addition to externally imposed goals, an individual's goal orientation may also influence development and expression of work competence (see Farr, Hofmann, and Ringenbach, 1993). Studies on the effects of "goal orientation," defined in terms of the purpose that individuals hold for goal attainment, suggest a positive relation between learning goal orientation and performance in training and job contexts (Brett & VandeWalle, 1999; Colquitt & Simmering, 1998; Ford, Smith, Weissbein, Gully, & Salas, 1998; Mangos, 2001; Ramakrisha, 2002; Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000; VandeWalle, Brown, Cron, & Slocum, 1999). Consistent with Elliot and Harackiewicz (1996), VandeWalle (1997) proposed that the effects of performance goal orientation on job performance depend upon whether the purpose of the goal is directed toward demonstration of one's ability (i.e., performance prove) or toward avoiding demonstration of one's lack of ability (i.e., performance avoid). Although relatively few studies have used the tripartite distinction in the context of work performance, there have been many studies in academic performance contexts (see, Elliot & McGregor, 2001; Elliot & Moller, in press, for reviews). In the work context, findings obtained by VandeWalle, Cron, and Slocum (2001) indicate a positive relation between performance prove goal orientation and job performance, and a negative relation between performance avoid goal orientation and job performance.

There is also some evidence that personality traits influence task goals in the work setting. In two studies of salespersons, Barrick, Mount, and Strauss (1993) found that the effects of conscientiousness on job performance were mediated by task goals. In a further study of salesperson performance, Barrick, Stewart, and Piotrowski (2002) found that accomplishment and status striving mediated the influence of conscientiousness on job performance. These findings suggest that broad traits may affect job performance through their impact on construal of task-specific goals.

Organizational Culture and Work-Setting Climate

When the work role and goal-setting contexts directly influence the development of competence, other aspects of the organization and the specific work setting will influence the expression of competence. In a supportive organizational culture, workers will be more likely to expend effort toward expressing competence through task performance. However, in too many situations to mention, there are intervening variables that act to prevent a direct relation between work competence and work performance. A few examples illustrate these kinds of situations. First, when there is a climate oriented toward social loafing or a work group that discourages "rate busting" (e.g., Harkins, Latane, & Williams, 1980), workers may be discouraged from expending a maximal degree of effort. In such situations, a bank teller or a grocery store checkout clerk might have the knowledge and skill to accomplish tasks in an efficient and rapid fashion, but does not do so—in order to perform at a level that is typical for the group. Poor interpersonal relations between supervisors and subordinates may also influence withdrawal behaviors (poor effort, excessive off-task behaviors, etc.). An employee who feels that his or her supervisor does not appreciate his or her efforts may find little reason to expend more than a minimal amount of effort on the job, thus creating a dissociation between competence and performance. An organizational lack of procedural fairness (e.g., Greenberg, 1990) may also affect the expression of competent performance. Because a nearly unlimited set of situations result in a breakdown in employee commitment, there are many more reasons for a disassociation between competence and performance to occur than there are reasons for an extremely close association between an employee's competence and performance. However, even if there is otherwise good organizational support, competent job performance is not possible unless the individual has the requisite knowledge and skills for the tasks at hand. Thus, learning opportunities and skill development support and must precede work competence.

A MODEL OF WORK COMPETENCE

The model shown in Figure 19.3 represents an attempt to portray the interplay between the various traits, situational demands, and job performance as they relate to work competence. The broad outline of the PPIK framework provides the distal individual differences determinants of work competence. Work role demands and contextual variables represent the proximal determinants of work competence and job performance. Finally, a path from job performance to work competence provides for the learning mechanism that relates job-related work experiences to increments in work competence. When there is a good match between the individual's trait complexes, his or her acquired work competence, and work role demands, there is a positive effect on both expression and development of work competence. A mismatch among any of these components, however, can result in a breakdown of the individual's future development of work competence.

For example, job performance ratings provide the individual with salient feedback that has consequences for both work motivation and competence. Self-generated and extrinsic performance feedback that are at odds with an individual's percepts of work competence, for example, may create a discrepancy condition that motivates goal choice processes and/or attempts to change work-related knowledge and skill inputs. Poor performance in basic science courses that are requisite for medical school training, for example, may led to alteration of an individual's career goals that shifts the direction of motivation for learning to other knowledge domains. In the job context, outstanding performance in the technical domain may enhance interest and motivation for increasing knowledge and skills in related areas. From a lifespan level of analysis, supervisory and self-generated feedback indicating an age-related decline in technical performance on attention-demanding tasks and slower rates of new skill training may create a motivational paradox in which older workers increase task effort but resist demands for new skill learning. Age-related shifts in the primacy of life goals, from achievement to preservation of competence, may also change the direction of motivation at both broad and specific levels. Midlife employees, for example, may shape work goals in ways that direct effort toward dimensions of performance that may be less valued by the organization (e.g., favoring quality over quantity). In the absence of cor-

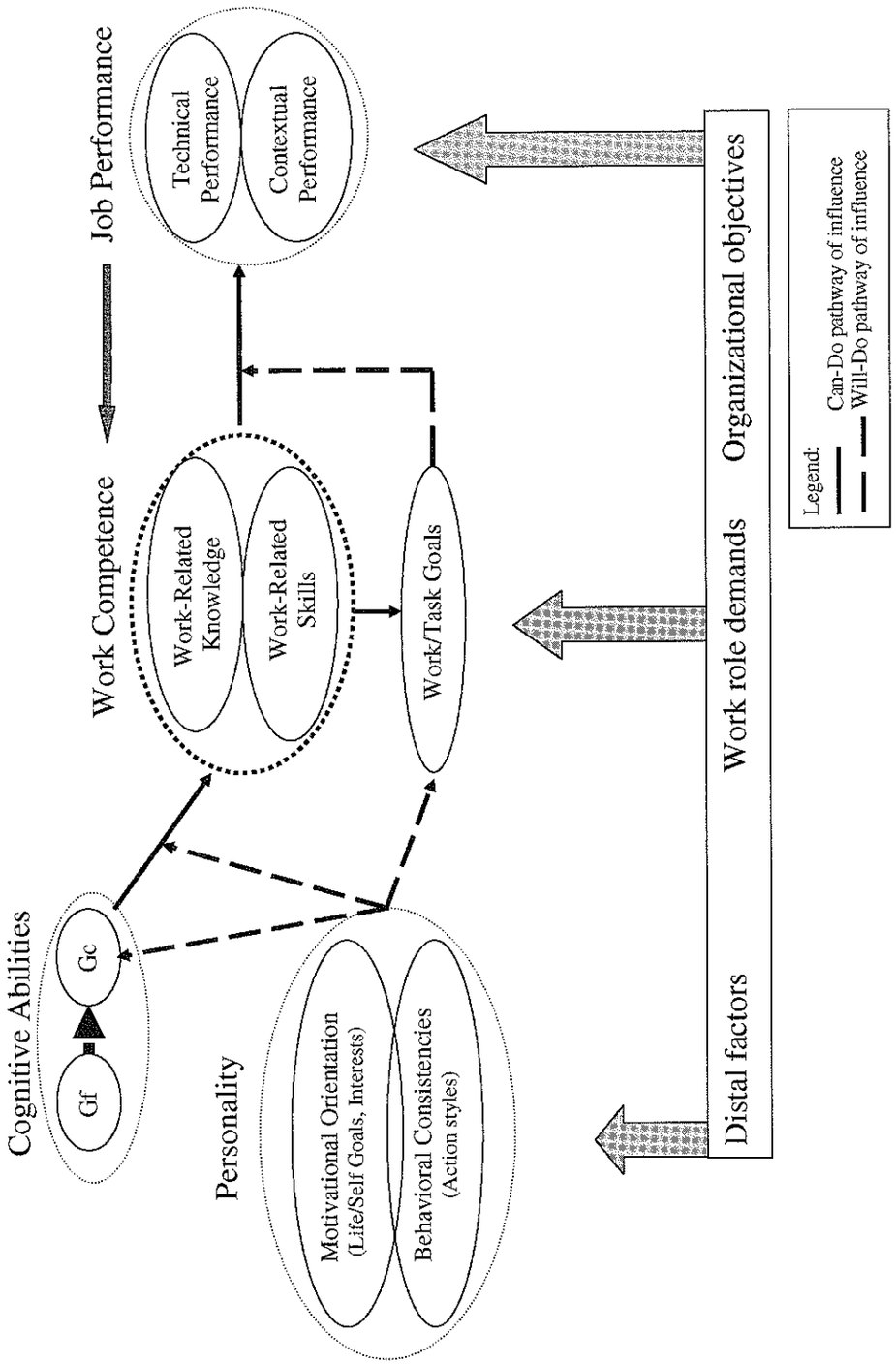

FIGURE 19.3. A model of work competence. Shown are distal factors, work role demand factors, and organizational objective factors. Solid lines indicate "can-do" pathway (maximal performance); dashed lines indicate "will do" pathway (typical behavior).

responding changes in work role demands, within-person changes in motive structure may ultimately reduce job performance and perceptions of work competence.

Individuals usually seek jobs that, among other things, enable them to develop and demonstrate competence. Likewise, organizations seek individuals who will perform well. Effective personnel selection involves careful evaluation of the correspondence between person attributes and job demands. But neither individuals nor organizations are fixed, and work competence may be compromised by changes in the individual and/or changes in the work role. The dynamic nature of both individuals and organizations, and their implications for work competence, is evident in two topics of growing interest to industrial–organizational psychologists: the changing nature of work and the aging workforce.

The Changing Nature of Work

Over the past century, socioeconomic, political, and technological changes in the United States and other developed countries have fundamentally altered the nature of work and the complex of human motivations for skill learning and job engagement. In the United States, fundamental shifts from an agrarian to an industrial to a postindustrial economy have changed the ability, skill, and knowledge requirements for many jobs. Hunt (1995) proposed that job opportunities in the postindustrial economy tend to fall into three broad categories: jobs that place strong demands on higher order problem-solving and reasoning skills (e.g., architect); jobs that place strong demands on interpersonal skills and emotion regulation (e.g., customer service representative); and jobs that place strong demands on behavioral reliability (e.g., cashier).

In addition to changes in job demands, increasing organizational globalization has altered workforce management practices and employee–organization relations. The distribution of organizational operations around the world has increased workforce diversity and increased the use of team structures for work accomplishment. The quickened pace of organizational change in developed countries has also altered psychological assumptions underlying the employment contract. Large-scale layoffs of long-term employees whose job skills have become obsolete have emphasized the importance of continuous skill learning for sustained employment and the adoption of a protean career model (see Hall & Moss, 1998) that stresses self-managed, successive job changes.

Changes in the workplace have also brought about changes in the mix of motives for demonstrating workplace competence. Economic and achievement motives continue to play a major role. Increasingly, work competence over a career demands that employees demonstrate adaptability and a willingness to update skills and acquire new work competencies. Workers who have high levels of facilitative trait complexes may be expected to continue to invest cognitive resources to maintain competencies and gain new work-related knowledge and skills. Workers who have lower levels of facilitating trait complexes may find their skills increasingly obsolescent, except in low-knowledge jobs, where interpersonal skills may be the major determinant of work competence. However, in knowledge-rich domains, some individuals may nonetheless be sufficiently motivated to learn, when faced with a downward path of earning potential and job status.

The Aging Workforce

From a trait perspective, the transition from early adulthood to middle age and beyond represents a pattern of both stability and change. For abilities, *Gf* peaks at around the mid-20s, while broad *Gc* tends to increase well into the 40s and 50s, though to a more modest degree than the declines in *Gf*. Cross-sectional data (e.g., Ackerman, Beier, & Bowen, 2002) support the notion that the self-concept of middle-age adults tends largely to reflect the changes in abilities associated with aging; that is, middle-age adults have lower self-concept for math and reasoning abilities but preserved self-concept for verbal and other crystallized abilities. Vocational interests tend to be remarkably stable throughout most of the work life (e.g., Strong, 1955). Broad traits of personality tend to be relatively stable as well, though recent findings suggest that personality organization tends to retain a dynamic quality well into middle adulthood (Roberts & DelVecchio, 2000), and that there are mean,

age-related changes in trait levels across the lifespan (Jones & Meredith, 1996; Warr, Miles, & Platts, 2001). Motivational traits also tend to be stable, though cross-sectional data suggest that middle-age adults tend to have lower levels of an orientation toward competitive excellence (Kanfer & Ackerman, 2000).

Given these patterns of development and stability for trait determinants of competence, it is important to consider their effects on the development and maintenance of work competence. For well-learned knowledge and skills, just like for broader *Gc*, it appears that stability across most of the work life is the typical pattern. For tasks that require extensive involvement of *Gf*-type abilities (e.g., memory, attention, and abstract reasoning) and physical strength, however, day-to-day competence is at risk as individuals age from young to middle adulthood and beyond. An individual might increase his or her effort expended toward task performance (an approach that may compensate for some of the loss in cognitive attentional resources), but jobs such as air traffic controller, neurosurgeon, and fighter pilot are ultimately the province of younger adults. For such jobs, the traditional pattern of promotion to supervisory, administrative, or training roles matches the decline in *Gf* and compensatory increments in *Gc* and domain knowledge. This process is described in more detail in the selection, optimization, and compensation model proposed by Baltes and Baltes (1990).

In contrast, knowledge workers often have better prospects for maintenance and development of work competence, without fundamentally changing jobs. Because high levels of domain-specific knowledge facilitate acquisition of new knowledge and skills in the same or similar domains (through near transfer of training), new learning requires less overall investment of effort and time than it does when the domain is novel (new learning, or far transfer of training). The caveat to this assertion is that interruptions in keeping up with new sources of knowledge or new technology may result in more substantial effort and ability demands when the individual finally confronts the need to acquire new knowledge. Failing to continually update knowledge and skills often puts new learning further and further out of reach. At middle-age and beyond, the investment needed to start learning again may become so high that it results in a poor cost–benefit trade-off (see the analysis by Posner, 1995). In the final analysis, a work environment that is supportive of continuous and lifelong learning is necessary for maximizing the competence of the employees over their work life. When an organization fails to provide this kind of environment, it can be expected that only individuals with high levels of facilitative trait complexes will continue to develop their work competence.

FINAL NOTES

In this chapter, we have provided an outline of the trait and work role determinants of work competence, and a sense of the dynamic interplay of these factors in maintaining competence over the work lifespan. We have described a relatively small set of common factors, called "trait complexes," that appear to be especially facilitative or to impede the development of work competence. We have also provided a conceptual model of work competence, in the context of trait, situation, and performance factors. Implications of these factors were discussed relative to a world in which the nature of work is in flux and individuals also must confront patterns of age-related changes. Individual differences in work competence can be predicted to a significant degree through examination of ability and nonability traits. Expression of work competence can also be predicted though examination of traits, work role demands, and organizational objectives. Individuals who have a favorable pattern of traits and a work situation that encourages knowledge and skill development can be expected, *ceteris paribus*, to maximize competence and performance over the work lifespan. In the final analysis, patterns of growth, stability, or decline in work competence are predicated on all of these components and other factors not considered here (e.g., physical health and work–family conflicts).

NOTE

1. Differential psychology is the study of individual and group differences.

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CHAPTER 20

Legislating Competence

High-Stakes Testing Policies and Their Relations with Psychological Theories and Research

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The development of competence in schools is an increasing focus of national concern in countries across the globe. This concern is fueled by the fact that educational outcomes, broadly considered, are linked with the health and economic well-being of nations. Beyond the obvious economic and health value of schooling to the individual person, the general expansion of education within a nation is associated with a host of outcomes, from reduced mortality and fertility to increased economic productivity and positive social change (Sen, 1999).

Because of the importance of the development of competence, governments are also increasingly attempting to legislate ways to enhance educational opportunities and outcomes. Yet much controversy exists about the appropriate ways governments can stimulate improved schools and greater academic achievement, and what kind of improvements in achievement are actually meaningful for the health and economic well-being of a nation. This issue is international and occupies headlines from Great Britain to South Korea.

In the United States, state and federal government policies aimed at obtaining greater "accountability" and "higher standards" have especially stimulated controversy. These recent policy initiatives attempt to improve school performance through *high-stakes testing* (HST). Specifically, high-stakes policies represent a two-pronged approach to reform. The first prong entails increased testing to gauge how students, teachers, and schools are performing relative to each other, and relative to the *standards* that government agencies determine all students should meet. The second prong carries the motivational component: This testing has teeth. The attainment of standards is motivated or enforced by *high stakes* in the form of rewards and punishments, such as

financial incentives and job security for educators, and grade retention versus promotion for students. HST reform has become, in short order, the most dominant pressure in America's public schools and is rapidly reshaping teaching practice and curricular contents across the nation.

What is most interesting about this approach to reform, for the purposes of this volume, is that HST policies reflect particular theories of motivation and achievement. Specifically, high-stakes reform approaches represent a view of competence promotion and teaching that reflects an operant theory of motivation (Kellaghan, Madaus, & Raczek, 1996) and a view of educational outcomes that is more closely aligned with those espousing performance goals rather than mastery or learning goals (Deci & Ryan, 2002); that is, the governmental policy is founded on the idea that making rewards and punishments more salient and contingent on test score outcomes is the most appropriate and effective way of ensuring greater student effort and learning, and more effective teaching. As such, this social policy enacts a behavioristic motivational philosophy and represents a natural experiment in the social psychology of competence. It is a policy that suggests that high-quality educational motivation is a function of external incentives, a view that at least some psychologists support (e.g., Eisenberger, Pierce, & Cameron, 1999; Hidi, 2002).

In contrast, several theories in contemporary motivational psychology predict that attempting to enhance achievement in schools through such external controls will yield some highly negative results, based on the properties of the type of motivation it incites. In particular self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000) explicitly predicts important costs of implementing such an approach to motivating competence in public schools. Similarly, some tenets of modern goal theories (e.g., Dweck, 1991; Nicholls, 1984; Elliot, 1999) also suggest potential costs of a focus on demonstrating performance outcomes. Thus, what is scientifically engaging about the social policy debate and implementation is that results of reform should be interpretable, in accord with the varying predictions of these psychological models. What is socially engaging about the debate are the relative costs and benefits to children.

In this chapter, we examine HST reforms in the United States precisely because they illustrate the impact that social policy can have on institutional practice, and the relations (or absence of them) between empirically based research in psychology and education, and governmental policies. We highlight the nature of these test-driven reforms, the legislation surrounding them, and both the theoretically predicted impact and the current empirical data on their effectiveness and consequences. We then discuss the seeming divorce between political reforms and current empirical research in the psychology of competence and education.

To presage some conclusions, our review suggests that, to date, HST has not, in general, produced positive outcomes. Nonetheless, both the positive and negative data that have been obtained can be readily interpreted using the principles outlined in extant theories of motivation. In line with operant theory, and the general recognition of the power of contingent rewards to control behavior, high-stakes policies do indeed change behavior. They lead to increased district, school, and teacher activities intended to raise test scores. In fact, some of the behaviors that these contingencies incite are part of the problem, such as "teaching to the tests," elimination of developmentally enriching activities that are not likely to be tested, manipulation of targeted standards, and "push-outs" of potentially low performers from the pool of test takers. In line with self-determination theory (e.g., Deci & Ryan, 2002; Ryan & LaGuardia, 1999) and some perspectives on performance-focused motivation (e.g., Midgley, Kaplan, & Middleton, 2001), these high-stakes reforms are yielding a variety of collateral or unintended negative consequences, especially in areas involving persistence and quality of learning. Among the concerns is that HST is typically "one size fits all," requiring all students, regardless of their backgrounds, learning differences, and rates of development, to jump the same evaluative hurdles simultaneously. This approach potentially lowers the ability of schools to optimally challenge students of different talents and achievement levels, and it is of special concern regarding students with disabilities. An-

other concern is the problem of transfer: Rises in high-stakes test scores do not appear to generalize to other indices of improved achievement (e.g., other achievement measures). This poor generalizability is not necessarily due to the invalidity of the tests, but rather to the criterion contamination caused by their high-stakes implementation. The rewards and punishments that prompt an urgency to raise test scores lead to a narrowing of teaching, and therefore learning, and foster classroom dynamics that tend to decrease student motivation and engagement, as well as teacher morale and creativity. Perhaps more importantly, because HST neither provides a good basis for intrinsic motivation nor offers students optimal challenges (because the standards and methods of demonstrating performance are the same for all), reforms based on HST have been associated with increased school dropouts. These dropouts are especially salient among those already at risk, including the urban poor, students with special needs, and those for whom English is a second language—the very children whom many HST advocates have said they do not want to leave behind.

THE HIGH-STAKES TESTING MOVEMENT

There is little argument that gathering information and providing feedback about performance in educational settings is important for maintaining student and teacher motivation, and for informing educational policy (Linn, 2000; Shepard, 2000). Indeed, feedback regarding outcomes is recognized as a critical feature in improving the function of any organized system (Carver & Scheier, 1998). The function of assessment in gathering information, however, has additional impacts when the outcome data are linked with contingent rewards and punishments, as is the case in HST.

HST has been advocated as a means of motivating students and teachers alike to put in more effort, and thereby raise student achievement (Oakes, 1991; Finn, 1991). Policies instituting HST have taken on varied forms, but the common denominator in such initiatives is that state or federal governments mandate standardized testing of all students and then administer rewards or sanctions based on the results. Students, teachers, and schools that improve or do well are rewarded, and those that decline or do badly are punished. For students, HST results can be the basis for promotion versus retention, and in some states, failure on a single indicator can result in the denial of a high school diploma. Teachers in schools that perform well may get cash bonuses, while those in other schools are reprimanded or derogated. For the schools, the comparative student performance average can result in increases versus cuts in school budgets, and in some cases, poor student performance may result in administration changes or even school takeovers by the state. When the stakes get high for administrators, local officials can even add to the stakes. For example, schools have offered cash prizes, parties, exemptions from finals, scholarships, candy, and awards to high-scoring students (Keller, 2000). School superintendents have been given personal cash bonuses when scores in their districts improve. However, the principal incentive at the administrative level is the public nature of high-stakes assessments. Schools and districts are publicly compared on their test scores, with the often explicit reasoning that pride or humiliation will be attached to the differences in score attainments. Accordingly, at all levels of educational systems, raising the stakes leads to increased attention to test scores because of the consequences attached to them.

A BRIEF HISTORY OF HIGH-STAKES TESTING

The modern HST movement has roots dating back to 19th-century England. Utilitarian philosophers such as Jeremy Bentham (1748–1832) and James Mill (1733–1836) formulated principles of motivation based upon hedonic principles and associationism that provided the foundations of what would become modern behaviorism (Rachlin, 1976). In applying these principles, they suggested the systematic use of rewards and punishments to establish good learning habits in schools. The English Parliament was perhaps the first government to put HST into practice, passing numerous laws intensifying examination structures to ensure literacy, including the Revised Code of Regulations (1862), which advocated a "payment by results" scheme that linked the funds awarded to schools to students' performance on the exams. Whereas the Code promoted a wider national school system, it also prompted a rigid narrowing of curricula and an escalation of teacher-centered drill- and repetition-focused instruction. Although the Code was eventually repealed, the ideas of "streaming" or segregation of students according to ability level, evaluation by exams, and the resultant conservative methods instituted by the British system in the 19th century continued into the modern era.

In the United States, the modern instantiation of HST begins with the controversial publication of *A Nation at Risk* in 1983. This document, authored by the National Committee on Excellence in Education, declared that a rising tide of mediocrity was threatening the United States and its ability to compete in the world economy. (Parenthetically, one should note that despite relative stability in achievement standings since 1983, U.S. workers in 2001 were second in the world in global competitiveness according to the World Economic Forum [2002] report). Although one might assume that reform to alleviate "mediocrity" could take any number of directions, the U.S. government's approach under President Reagan was to step up demands for a core curriculum, more homework, more discipline, and more "accountability" (e.g., performance-based pay for teachers and increased testing), not more resources for schools, in part because lawmakers sought reforms that could be easily understood and rapidly implemented. Within several years following the report, virtually all states adopted more stringent graduation requirements, and many added mandatory homework requirements. School days lengthened and extracurricular amenities shrank. Standardized testing and curricula, matched to what those tests could measure, burgeoned.

Echoing the spirit of these reforms, William Bennett, a politician and popular moralist, proclaimed that "accountability is the linchpin, the keystone, the sine qua non of the reform movement" (Toch, 1991, p. 205). The demand for accountability led quickly to a focus on tests and pressure toward better outcomes on them. Policymakers in nearly every state implemented policies to assess educational standards, and in many of these states, high-stakes consequences were attached to these outcomes, presumably as an incentive–punishment system to motivate change. High-performing schools were to be rewarded and underperformers penalized. Thus, the implementation of policy followed a behaviorist paradigm in which contingent rewards were applied to motivate (and control) teachers and students.

Although there were disappointing results from this early round of HST and many well-documented negative effects (see review by Toch, 1991), the late 1990s saw a new infusion of investment in HST policies. Politicians and business groups lobbied for still greater accountability in public schools, and states increasingly developed tests by which to rank and reward schools based on standardized test scores. Some states, such as Texas, aggressively pursued HST policies throughout the 1990s, and in so doing showed increased scores on the specific tests that were the targets of rewards and sanctions (Haney, 2000). By the first year of the new millennium, nearly all states were using HST in an attempt to foster school achievement. Nearly all states now publish school or district report cards on targeted tests, with the explicit purpose of motivating schools through public pressure or ridicule. Nearly half of all states also provide financial rewards to schools that improve on tests, and threats of administrative change or takeover for those that decline. Many states are directly paying school administrators bonus cash awards when schools under their watch improve on test scores.

Finally, states have been increasingly creating high stakes for students, as well as administrators. The most common high stake is that grade passage versus retention, and ultimately graduation, is contingent on passing a state-administered test. The high stakes of grade retention on the basis of a single examination have been applied as early as the fourth grade (e.g., in Florida). It is explicitly assumed by HST advocates that this type of contingency leads students to work harder in school (e.g., Cheney, 1991; Shanker, 1993), a point contested by critics (see Kelleghan et al., 1996). At this point in time, more than half of all states have made grad-

uation from high school contingent on a standardized test performance.

A National Initiative: No Child Left Behind

In 2001, President George W. Bush succeeded in passing, with bipartisan support, landmark legislation entitled No Child Left Behind (NCLB). A stated goal of NCLB is to raise levels of achievement and close the performance gap separating middle-class from poor and underperforming minority students. The plan called for even more testing and more salient stakes for schools and students alike. Specifically, NCLB mandates annual testing in grades 3–8 in math and reading. According to the legislation, scores from such tests are to be used to determine improving and declining achievement, such that penalties and rewards can be attached to them at the level of schools and children. Schools must make steady progress every year toward raising achievement levels on these exams in each of five racial and ethnic subgroups, as well as among low-income students and those with limited English skills or learning disabilities. Failure to demonstrate improvement for *any* of these subgroups for 2 consecutive years results in a school being labeled *low performing*. According to NCLB mandates, schools deemed low performing must facilitate the transfer of students to better schools or provide private tutors for students. Schools that continue to be low performing beyond 2 years can have their administrators and staff replaced. Federal funding is made contingent on compliance with these mandates.

NCLB has many critics. Given the expectable, year-to-year deviations that occur in standardized test results, schools may frequently be categorized as low performing for what amounts to statistical issues rather than reasons of educational quality. However, such logistical concerns are not the ones most pertinent to a critique of HST as a strategy of reform. As noted, HST represents a motivational policy. Yet a number of contemporary motivational theories suggest that a host of unintended negative consequences will stem from the pressure and rewards used to externally control teaching and learning. These include narrowing of curricula, teaching to the test, less creative teaching, more superficial and nontransferable learning, more controlling behavior at all levels of power, more withdrawal of effort from at-risk students, and increased dropout rates. We turn first to these theoretical predictions, and then to a review of the accumulating empirical findings on the use of HST.

THEORETICAL PERSPECTIVES ON HIGH-STAKES TESTING

High-Stakes Testing as an Operant Approach

HST is based, at least implicitly, on a behaviorist view of student and teacher motivation. By putting contingent reinforcements on outcomes, the policy presumably increases efforts and behaviors associated with improvement; that is, HST advocates reason that whatever behaviors schools adopt to enhance test scores will be reinforced and selected for, whereas those associated with lower scores will be extinguished and, in the case of poor-performing schools, selected out. Not only will the behavior of teachers change, so will that of students. According to Shanker (1993), strong consequences attached to test scores will provide students with "the incentive to work hard and achieve because they know something important . . . is at stake" (p. 7).

The historical link between HST and behaviorism has deep roots. As previously noted, behaviorism emerged from a blend of British associationism and a hedonic view of human motivation, in which learned behaviors were always a function of external controls that punish or reward. It follows from this perspective that educators should utilize these external forces in regulating learning.

This approach to motivation was integral to the work of perhaps the most influential of all behaviorist educators, E. L. Thorndike. The central principle of Thorndike's theory of learning, which he called *connectionism*, was his *law of effect*, which states that if a behavior is followed by a satisfying consequence, it is more likely to occur in the future under similar conditions. Conversely, if a behavior is followed by an unsatisfying consequence, its probability of recurrence will wane. A second principle was that of

frequency: The more frequently an association is repeated, the more likely it is to recur in similar conditions. Together, these "laws" of learning underwrote educational practices focused on the use of external reinforcements, coupled with practice, drill, and repetition. Although these techniques have characterized conservative approaches to education across history (see Ryan & Lynch, 2003), connectionism gave them a specific theoretical rationale.

Thorndike was also an advocate of testing. As he stated, "Testing the results of teaching and study is . . . the sine qua non of sure progress. It is the chief means to arousing . . . the instinct for achievement" (1962, pp. 65–66). However, interestingly, Thorndike was also cautious about how such tests should be used. As he states: "Great care should be taken in deciding anything about the fate of pupils, the value of methods, the achievement of school systems and the like from scores made in a test" (p. 156).

Thorndike's behaviorism was influential in education for several decades but eventually gave way to the "radical behaviorism" of B. F. Skinner. Skinner similarly advocated the systematic application by teachers of consequences, principally positive reinforcements, to induce learning. Skinner also promoted the idea of "programmed learning," which viewed instruction not as based in relationships or interests, but rather in a well-structured and systematic application of contingent reinforcements.

Today conservative educators continue to advocate the use of rewards to control learning, both at the classroom and school system levels. Behaviorists argue that teaching is most effective when based on control through reinforcements. For example, behaviorists Cameron and Pierce (1994), in the context of reporting a now discredited meta-analysis (see Deci, Koestner, & Ryan, 1999), argued that "teachers have no reason to resist implementing incentive systems in the classroom" (p. 397). At a political level, this theme is echoed loudly. Chester Finn has argued that "the problem is that academic success yields such few rewards [*sic*] and indolence brings few penalties" (1991, p. 120). He, and a broad array of conservative spokespersons, have argued that putting rewards and penalties behind the test scores will effectively alter the behavior of both teachers and their students. This type of thinking has deeply influenced recent educational reforms in several nations focused on HST. In this view, instruction should be driven by measurement, and the outcomes of measurement should be the basis of rewards and sanctions for both teachers and learners (as discussed in Popham, 1983).

Our interpretation of the HST movement as reflecting an operant strategy has one very important caveat. Operant theory has always been focused on making rewards contingent on target *behaviors*. The twist in the HST movement is that its advocates apply contingent rewards and sanctions to *performance outcomes*; that is, rather than rewarding valued behaviors, such as student effort or work habits, contingencies are instead applied to test outcomes, the control over which is often questionable, especially for at-risk students. Similarly, rather than rewarding excellent teaching activities and approaches, schools are rewarded or sanctioned on their test score results. This practice is not in line with the fundamental tenets of the operant viewpoint. Indeed, we believe that the focus on performance outcomes, rather than on behaviors that students and teachers have direct control over, is one of the features of HST that lead to reinforcement of the wrong behaviors.

This focus on outcomes does find affinity from some theorists who focus on goals as motivating forces in behavior. Among those perspectives that could be aligned with HST-based reforms is the goal theory approach of Locke and Latham (1990), who argue for a high-performance model in which demanding goals are linked with both internal and external rewards to maximize organizational efficiency. Although they developed their model in application to industry, they suggest its generalizability to schooling, arguing that the high-performance model of difficult goals associated with rewards for success "should be made part of our schools as well as our work organizations" (p. 268). Advocating this linkage between measurable outcomes and performance-contingent reinforcements would seem to be fully congruent with the HST approach. A similar advocacy of applying contingent rewards to performance outcomes has also been forwarded by Hidi and Harackiewicz (2000), whose perspective on performance goals we

review in discussing theories of mastery and performance goals.

Organismic Perspectives on Learning

A very different view of what motivates learning and competence can be gleaned from what has sometimes been called the "liberal perspective," and sometimes the "organismic perspective," in which learning is seen as an inherent or intrinsic tendency of the person (Ryan & Lynch, 2003). In this tradition, the desire to learn is seen as a natural or basic tendency of humans. Learning is growth. However, like all growth, this inherent initiative or tendency requires support and nutriments. The result is a process (rather than outcome) focus, in which nurturance, mainly in the form of warm relationships, optimal challenges, and supports for autonomy and interest, are the most common elements.

Throughout history, educators embracing this liberal view have argued that students are not optimally motivated by external controls, but rather by support of their inherent tendency to learn. In ancient times, this view was espoused by Quintilian, who recognized that learners of different ages and types have distinct needs and interests, and held that curriculum and methods should be tailored accordingly. He deemphasized the then common use of punishment, instead stressing the importance of making learning interesting and attractive. In the Renaissance, similar views were echoed by Comenius, who focused on the strategic importance of warm student–teacher relationships and enhancing students' interest in learning. Subsequently, Enlightenment philosopher Rousseau laid the groundwork for much modern thinking in the liberal vein, emphasizing children's curiosity and natural inclination to learn under supportive conditions.

Rousseau influenced generations of subsequent educators. Outstanding among them was the Swiss educator, Pestalozzi, who viewed the aims of education not as "imposing on the child fixed doctrines and alien concepts but in helping him to develop his own constructive powers" (Silber, 1973, p. 274). His method of education entailed, first and foremost, an atmosphere of emotional security based in a warm and caring relationship between teacher and child. He advocated that knowledge be gained, when possible, through direct experience rather than through mere words passed from teacher to child. He also downplayed the utility of punishment and fear of evaluation, suggesting that if provided a secure base, the child's nature would lead to discovery and growth. Pestalozzi's philosophy was widely disseminated during the 19th century in Europe and the United States, and became a major influence on a diverse family of practitioners, including Froebel in Germany, and Montessori in Italy.

Finally, in the 20th century, Dewey (1938) emphasized the importance of cultivating interest and inquiry in crafting an education, rather than arbitrarily imposed educational tasks and goals. He stood, in this respect, in stark contrast to his behaviorist contemporary, Thorndike. In the realm of psychology, Rogers (1969) developed an influential perspective on teaching, stemming from his *person-centered approach*. He advocated a classroom experience that grows out of the authentic inquiry of the student. Rogers felt that the external locus of evaluation represented by traditional examinations and normative grading stifled the significant learning that grew out of a student-centered, responsive teaching environment. It was Rogers who faced off with B. F. Skinner in the 1950s and 1960s, debating the value of external control versus self-actualization in the enterprise of learning.

In summary, a long tradition of philosophy and psychology has argued against externally controlling techniques as the *via regia* to student learning. Instead, this tradition focuses on nurturing the natural inclination to learn, the diversity of learning abilities and styles, and the importance of students' developing their powers of self-evaluation. Importantly, the last few decades have seen the emergence of several empirically focused motivation theories that supply some support for this perspective.

Self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000) is one such empirically based organismic perspective that views humans as intrinsically motivated to learn and develop competencies. However, the theory is centrally concerned with the conditions that support versus thwart these intrinsic propensities. SDT is thus particularly interested in the impact of events

such as evaluations, praise, and contingent rewards and punishments on behavior and learning.

Specifically, SDT highlights the fact that students' motivation to learn can vary in its relative autonomy, from behaviors motivated by external rewards and punishments (controlled motivations) to those that are energized by interests and values (autonomous motivations). Both evidence and theory based on SDT suggest that, to the extent that one's motivation is based on more autonomous motives, such as intrinsic motivation or well-internalized values, the more quality of learning, persistence, and affective experience are enhanced (Grolnick & Ryan, 1987; Ryan & La Guardia, 1999; Ryan, Stiller, & Lynch, 1994). On the other hand, SDT research has found that motivation based on more controlled motives, such as rewards or punishments (external regulations), or self-esteem-based pressures (e.g., ego involvement) is associated with lower quality learning, lessened persistence, and more negative emotional experience.

Because HST policies are based on the idea that rewards, punishments, and self-esteem-based pressures are effective motivators of learning, the principles of SDT apply (Deci & Ryan, 2002; Ryan & La Guardia, 1999). In what follows, we summarize the theoretical basis for those hypotheses as they relate to teacher and student motivation, and review some of the evidence supporting the validity of these hypotheses.

According to SDT the specific effects of external events such as evaluations or feedback on human motivation depend on the psychological meaning, or *functional significance*, that the events have for the recipient (Deci & Ryan, 1980, 1985, 2000). The theory specifies that the functional significance of an external event, such as a test score, a tangible reward, or praise from a teacher, can be informational, controlling, or amotivating. Events have *informational significance* when they provide effectance-relevant feedback in a noncontrolling way; that is, when an event provides individuals with specific feedback that points the way to being more effective in meeting challenges or becoming more competent, and does so without pressuring or controlling the individuals, it tends to have a positive effect on self-motivation. Events have *controlling significance* when they are experienced as pressure toward specified outcomes or as an attempt to control the activity and effort of the individual. According to SDT, when evaluations have controlling significance, they may produce temporary compliance, but they ultimately undermine self-motivation, investment, and commitment in the domain of activity being evaluated. Finally, events have *amotivating significance* when the feedback conveys incompetence to the individuals or supplies no inner or outer rationale for acting. Evaluations or reward structures based on overly challenging standards, or that are perceived to be beyond the reach of the individuals, are thus amotivating: They undermine all motivation and lead to withdrawal of effort. Teaching that does not tap into a student's interests, or that does not supply a basis for the experience of relevance or meaning, can also foster amotivation.

Both experimental and field studies have supported these predictions concerning the impact of events such as feedback and rewards on subsequent motivation. Extensive reviews are available elsewhere, but a few examples are worth detailing. In experiments with rewards, Ryan, Mims, and Koestner (1983) showed that reward structures delivered in an informational manner did not undermine intrinsic motivation, but rewards used to pressure people toward a specified outcome did. In another demonstration, Ryan (1982) showed that students who were pressured to perform by stressing that outcomes reflected ability (an ego-involving induction) were subsequently significantly less likely to engage with the target task than were students who were induced to focus on the task itself rather than task outcomes. In an experiment conducted within an elementary school, Grolnick and Ryan (1987) had students engage in a reading comprehension task under three conditions. In the first, students were told they would not be tested at all. In the second condition, they were told they would be tested, but only to determine what kinds of ideas were learned, so there were no consequences for failure or success. In a third condition, students were told they would be tested and graded, and that the grade would be delivered to their classroom teacher. This third condition represented a controlling use of

evaluations. Results showed that the controlling evaluation condition promoted not only short-term, rote memory but also produced a significantly lower level of conceptual learning and knowledge integration than the two noncontrolling conditions. Evidence from these and related studies (e.g., Benware & Deci, 1984) indicates that when tests, evaluations, and rewards are used in controlling ways, they have negative effects on students' interest, motivation, and higher level cognitive outcomes in school. Classrooms studies have added to these findings by showing that when teachers are oriented toward being controlling (e.g., using evaluations and rewards), students are less intrinsically motivated, less desirous of challenge in school, and also less confident in their skills (e.g., Deci, Schwartz, Sheinman, & Ryan, 1981; Ryan & Grolnick, 1986).

How Performance Standards Affect Teachers

The finding that when teachers use controlling strategies and performance pressure to motivate students, the students become less self-motivated and less engaged in school, raises an interesting issue. What factors lead teachers to be controlling? One answer is that they may become controlling when they themselves are pressured to get children to perform. An experiment performed by Deci, Spiegel, Ryan, Koestner, and Kauffman (1982) addressed this issue. Participants simulated teachers with the task of helping students learn a cognitive-perceptual task. The teachers all had the same set of problems to work with and were given the same preparation. However, before entering the teaching session, one group was explicitly told that it was their job to make sure their students performed "up to high standards," whereas another group received no such pressure. The sessions were recorded and rated for differences in teaching strategies. The results showed that the participants who were explicitly pressured to produce high student achievement were more controlling and less supportive of students' autonomy. Specifically, teachers in the performance standards condition engaged in more lecturing, criticizing, praising, and directing—all techniques that have been shown to have a negative impact on students' interest in learning and their willingness to undertake greater academic challenges. Flink, Boggiano, and Barrett (1990) followed up on this reasoning by examining a newly introduced school-based curriculum for elementary students across several schools. They showed that, as predicted, teachers pressed toward higher standards were more likely to engage in controlling instructional behaviors. In line with SDT, the more they did so, the more their students actually performed more poorly on objective test-score outcomes. This is consistent with a wide body of literature linking evaluative pressure with poorer performance in schools (Kohn, 1996; Ryan & Stiller, 1991), as well as dropout rates (Hardre & Reeve, 2003).

From the SDT perspective, creating a test-driven evaluative focus not only leads teachers to be more controlling but also leads students to be more externally regulated and/or ego involved in their motivational orientation. According to SDT, ego involvement is potentiated whenever a person's esteem is linked with attainment of specific outcomes (deCharms, 1968; Plant & Ryan, 1985; Ryan, 1982). Accordingly, ego involvement can motivate effort, just as rewards can. However, like most performance-contingent rewards, ego involvement is a controlling form of extrinsic motivation, and it runs the risk of undermining internal motivations based in value or interest. Furthermore, unless one is ensured of success when applying effort, ego involvement can have deleterious immediate effects. The more ego involving a context, the more many students, particularly the less confident ones, withdraw effort in order to reduce the diagnosticity of tests and thus protect their self-esteem (Martin, Marsh, & Debus, 2001). Additionally, even for students who try to do well, such evaluation-based motivations tend to foster more superficial and less integrative learning processes, thus debilitating long-term knowledge retention and growth (Golan & Graham, 1990; Grolnick & Ryan, 1987).

Beyond this, the evidence suggests that focusing parents' concerns on performance outcomes will lead them, like teachers, to use pressuring motivational strategies that will backfire, leading to lower achievement over the long term (Ginsburg & Bronstein, 1993; Grolnick, 2003; Grolnick, Gurland, Decourcey, & Jacob, 2002; Grolnick &

Ryan, 1989). In short, pressure (whether it be through rewards or esteem-related threats) to meet externally dictated or controlled standards usually translates into lower quality teaching and less effective motivational practices, unwittingly undermining high-quality performance, as well as the interest and task involvement that facilitate it.

It should also be mentioned that use of uniform evaluative standards for all students regardless of their starting points or resources, which is a invariant feature of HST policies, violates another tenet of SDT's approach to motivation. According to the theory, people are most intrinsically motivated when they are *optimally challenged*—when the tasks set by or for them are within reach. Tasks that are overly challenging have amotivational significance, and thus undermine motivation altogether, leading to lower effort withdrawal, helplessness, and lower confidence and self-esteem (Deci & Ryan, 1985; Ryan & La Guardia, 1999; Vallerand & Reid, 1984). The evidence is clear: If the bar appears to be too high, many students will experience futility and withdraw their effort. People are simply not motivated by the prospect of failure.

Moreover, test-based reforms seem to ignore the diversity of ways in which students both learn and demonstrate learning. As Gardner (1991) has argued, even a well-constructed test may be a nonoptimal challenge for some children, and may present a distorted picture of how well that student has mastered or understood material. Because the hallmark of HST is a single criterion, it favors those who are most apt within its format.

Together, these tenets of SDT would suggest that HST will have a number of negative effects, many of which are undoubtedly unintended (see Ryan & LaGuardia, 1999). The controlling reward structure behind HST should, according to SDT, externally regulate the behavior of teachers. They are thus predicted to engage in those behaviors instrumentally tied to test scores, regardless of their inherent value or worth. One should thus see a narrowing of curricula, more teaching to the test, more controlling motivational techniques used in classrooms, and less positive experience on the part of students and teachers alike. Because of the motivational dynamics set in motion in the classroom, SDT also predicts greater dropout rates among students, especially those at risk for failure or alienation, since withdrawal of effort is a common fallout of controlling and nonoptimal pressures, and uninspiring classroom practices. Systems such as state and district administrations will, because of the high stakes, be driven to "fuzzy accounting methods" (e.g., wavering standards), pushing out students who might bring down scores, and using other devices to maximize the target outcome, regardless of other costs of such behaviors. Yet, because there is pressure on narrowly defined test-score outcomes, scores on targeted tests should increase, but such increases will not necessarily generalize to other indices of achievement, because these increases were obtained through methods that do not incite more self-motivation, interest, and value for learning.

Achievement Goal Theories: Divided Views on the Value of Performance Goals and High Stakes

Another family of theories that has relevance to HST initiatives is those that concern performance versus mastery goals in the achievement domain, and the conditions that inspire them (e.g., Dweck & Leggett, 1988; Elliot, 1999; Nicholls, 1984; Pintrich, 2000). Although the theories differ in some details, the critically important distinction is between goals that are focused on increasing or *developing* one's competence or knowledge (called mastery or learning goals) and those focused on proving or *demonstrating* one's competence or ability (often called performance goals). HST, by focusing on the demonstration of specific test scores and using rewards to make that demonstration salient, represents an institutional climate that one might expect to catalyze performance goals; that is, by making the demonstration of competence the most salient issue, students, teachers, and administrators alike would be likely to adopt a performance goal orientation.

A large body of evidence suggests that very different behaviors and quality of learning typically follow from performance versus learning and mastery goals. This evidence suggests that the more students are

focused on learning or mastery goals, the more extensively they enjoy learning, make greater use of higher level cognitive strategies, experience greater efficacy, and show better integration of what is learned (Ames & Archer, 1987; Elliot, McGregor, & Thrash, 2002; Midgley, Anderman, & Hicks, 1995; Midgley et al., 2001). Performance goals, by contrast, appear to foster a more superficial approach to learning, because the motivation is to demonstrate rather than attain competence. For example, a meta-analysis by Utman (1997) suggests that performance-focused goals can produce enhanced performance at rote or algorithmic tasks but tend to undermine performance at more heuristic or complex tasks. Furthermore, students with learning goals are often more willing to tackle challenges and difficult material, whereas those with performance goals are often more interested in demonstrating competencies already attained (Ames, 1992; Thorkildsen & Nicholls, 1991). Finally, performance goals have been linked to greater self-handicapping (Martin et al., 2001; Urdan, Kneisel, & Mason, 1999) and may leave students more vulnerable to helplessness when failure occurs (Dweck, 2002).

However, despite the numerous advantages of mastery goals in learning contexts, Elliot and his colleagues (see Elliot & Thrash, 2002) introduced an important distinction within goal theories between performance–avoidance and performance–approach goals. *Performance–avoidance* goals concern situations in which the student is primarily motivated to avoid failure or negative outcomes in the demonstration of performance. *Performance–approach* goals refer to a more appetitive desire to positively demonstrate high performance. Much empirical literature supports the view that the adoption of performance–avoidance goals has many negative consequences. By contrast, performance–approach goals seem to show fewer detrimental effects and can inspire some positive consequences (Elliot & Moller, in press).

It is important to realize that current HST systems do not, at least strategically, aim differentially to foster performance–approach rather than performance–avoidance goals. Indeed, the rhetoric of HST suggests that advocates expect that both desire to attain success and fear of failing at these demonstrations are engendered. Indeed, they may activate both to different degrees, both across and within individuals (Elliot & Moller, in press; Midgley et al., 2001).

Nonetheless, among the achievement motivation theorists focused on the performance versus the mastery goal distinction, opinions are divided as to the implications of the findings. Some theorists seem quite positive about having performance goals coupled with rewards be a central focus in classrooms. For example, Harackiewicz, Barron, Carter, Lehto, and Elliot (1997) argued that performance–approach goals are "adaptive" in settings where achievement is competitively defined or based on normative comparisons, because those whose adopted goal is to demonstrate high performance are more likely to do so. Hidi and Harackiewicz (2000) further advocate linking performance goals with extrinsic rewards. They speculated that performance goals linked with reward contingencies may be effective in promoting long-term interest and intrinsic motivation, especially among unmotivated and at-risk students. As Hidi (2002, p. 332) puts it: "Why should we assume that our children will produce high level schoolwork without expecting and receiving rewards?" Such thinking clearly mirrors the philosophy of HST advocates such as Bennett and Finn.

In contrast, other researchers in this domain hold that a focus on promoting performance demonstrations rather than mastery development in real-world classrooms will yield few positive and many negative motivational outcomes. Midgely et al. (2001), for example, highlight the fact that an emphasis on performance goals at best supports and rewards only highly achievement-oriented students who are certain about their abilities, and even for many of them, it leads to an extrinsic and superficial focus, and to vulnerability, if academic setbacks occur. In a context that emphasizes performance goals, they further suggest that many students, especially those with lower or uncertain abilities, will show increased self-protective strategies such as self-handicapping and withdrawal of effort. Thus, performance-focused classrooms may lead some students to be more extrinsically motivated to perform well, but, at the same time, it will lead to lessened intrinsic motivation and withdrawal of effort among those at risk for failure, a prediction in opposition to the view of Hidi and Harackiewicz (2000).

Between these views, Elliot and Moller (in press), even while highlighting the clear benefits of students adopting performance–approach goals, suggest that institutional policies should still be directed toward a mastery focus. For them, performance–approach goals, when they arise, are a natural expression of competence urges (Elliot et al., 2002). However, in their view, policies *aimed* at performance put many students at risk for undermining effects, because many will adopt an avoidance focus under such a circumstance.

Thus, performance–mastery goal theories lack consensus regarding the effects of establishing performance goals as a *modus operandi* in schools and, by implication, on the effects of HST reforms. Some in this tradition suggest a positive influence of performance goals linked with contingent rewards on promoting interest and achievement efforts, whereas others suggest that a performance goal focus backed by high stakes will lead to numerous deleterious results, especially for at-risk students. Still others suggest the need to develop strategies that could foster performance–approach orientations, without simultaneously generating performance–avoidance concerns in the same setting, although ways to do that have not been explicated.

THE RESULTS OF HIGH-STAKES TESTING

Given the clear, yet opposing predictions from theories of motivation on the impact of HST, it is interesting to look at what the accumulating evidence actually shows. It is important to note that full-fledged HST programs are still being phased in within most states; thus, the full impact of HST has not yet been felt. In addition, although anecdotes abound, only a few credible empirical studies are available. Nonetheless, there is a growing body of evidence associated with these initiatives, and we review the most extensive studies to date.

Moon, Callahan, and Tomlinson (2003) surveyed a nationally stratified random sample of teachers on the effects of state HST programs on their classroom practices. Results indicated that classroom practices were strongly affected, especially in schools serving students in the lowest socioeconomic strata. Teacher reports suggested that HST was indeed salient, and that increases in test scores are not necessarily a result of student academic attainment, but are more due to test preparation. Test preparation associated with HST was reported to drive out other instructional activities, because much time was taken in the classroom to review and practice for state testing. Test preparation was especially intense in poorer districts. The authors speculated that one result of HST is a narrowing of the curriculum and the implementation of practices that may actually run counter to effective instruction, student self-direction and autonomy, and opportunities for interaction between students. Indeed, the authors suggested that the very salience of HST in the minds of teachers may be restricting educational opportunities, particularly among those from the most impoverished areas. Moon et al. further suggested that when teachers specifically teach to the test, the scores may no longer represent the broader domain of knowledge for which they are supposed to be an indicator, especially in schools serving disadvantaged students, where the test preparation was reported to be more intensive.

A study by McNeil and Valenzuela (2000) of Texas teachers arrived at similar conclusions. They found that teachers were encouraged or required to reallocate time away from core subjects not tested on the state examinations, and to eliminate or curtail special projects, experiments, library research, extensive writing, or oral assignments. This was especially true in schools that might be lower in absolute performance levels (i.e., those serving less affluent students). Much time was also reported being spent specifically on test-taking strategies rather than substantive issues.

Evidence that HST leads to "teaching to the test," which in turn crowds out the teaching of skills not on the tests and the provision of enriched experiences that might better engage students' interest in additional knowledge seeking, may underlie the concern with the generalizability of score gains. This issue can be partly addressed by examining *transfer*, or the extent to which gains

on HST are reflected in evidence of improved achievement on other, nontargeted measures. Little research exists on the validity of test-score increases on HST, despite the fact that it is a crucial bone of contention between HST advocates and their opponents.

Perhaps the most comprehensive look at this issue was an 18-state study by Amrein and Berliner (2002). To test the transfer of score increases on high-stakes examinations, they obtained scores on non-HST that overlap with HST in their assessment of achievement domains. These were the ACT (established by the American College Testing Program), Scholastic Aptitude Test (SAT), National Assessment of Educational Progress (NAEP), and Advanced Placement (AP) tests. Their evidence suggested, contrary to that of HST advocates, that when transfer is considered, level of learning in those states with salient HST policies remains level or falls below previous levels once HST is implemented. In contrast, states without high-stakes graduation tests were more likely than states that had imposed them to show improvements on these outside tests. Indeed more than two-thirds of states posted decreases on ACT performance after high-stakes graduation exams were implemented.

Neil and Gaylor (2001), using the NAEP as a metric, similarly showed that states without HST were more likely to show score improvements than states with them; that is, NAEP scores were not improved by HST initiatives, and they also had many other potentially negative consequences. They specifically suggested that HST may widen educational outcome inequities between the rich and the poor rather than ameliorate them.

With so much attention paid to test scores, an equally important gauge of school performance is high school dropout rate. Although dropouts are hard to track and are often systematically misreported (Orfield, Iosen, Wald, & Swanson, 2004), available data show that both dropouts and students leaving high schools for equivalency diplomas are on the rise, with notable escalation in the past few years as HST policies have intensified. Indeed, Reardon and Galindo (2002), for example, studying students between 8th- and 10th-grade in districts with and without HST policies, estimated that the imposition of HST increased the odds of dropout by 39%.

Although accounts differ, one possibility is that as states required students to pass tests for promotion, more pupils were held back. In turn, convincing data suggests that the mere fact of retention dramatically increases the probability of dropout (Natriello, 1998). In addition, if one assumes that HST imposes even modestly more difficult standards, that, too, could lead to a motivation and discouragement among students already at risk for failure.

A related issue is the concern that HST may lead many students to seek a general equivalency diplomas (GED). Studies comparing high school graduates to young people who received equivalency diplomas show that even among those with similar academic scores, those who complete high school have higher earnings, secure better employment, and commit fewer crimes. One reasonable account of this is that the confidence, self-esteem, and work habits of young adults is greater if they graduate from high school than if they drop out to earn a GED, and that confidence translates into better adult outcomes. In other words, if HST drives students out of school, this has costs, most of which will be borne by children from lower income families.

Jacob (2001) examined the effects of high-stakes high school examinations on student retention, especially among low achievers, who, some have argued, would most benefit from a performance-based focus (e.g., Hidi & Harackiewicz, 2000). His findings, based on analysis of data from 15 states, showed that students in the bottom 20th percentile of achievement who faced such requirements were 25% more likely to drop out in states with tests. He also found, however, that use of the tests had no significant effect on subsequent academic achievement for the population considered as a whole.

Another way to examine the impact of HST policies is to examine the results in Texas, where the most widely cited and lauded HST program has been in place since the early 1990s. HST policies in Texas have been described in the press as the "Texas Miracle," and have become a model for other reform efforts, including the federal NCLB program. This enthusiasm was partially based on the fact that scores on the

Texas State Achievement Tests (the TAAS) had shown large gains under the high-stakes regimen; TAAS scores provided evidence of a decreasing gap between minority and white students. An independent report by Grissmer, Flanagan, Kawata, and Williamson (2000) of the RAND Corporation initially suggested that the high-stakes policies themselves might have facilitated this positive trend. However a subsequent report by RAND investigators (Klein, Hamilton, McCaffrey, & Stecher, 2000) found that such gains in TAAS scores did not match trends on other measures, raising serious questions about the meaning of these achievement gains, or their transfer, and about the validity of the score gains. With regard to the achievement gap, results from other tests besides the TAAS also suggested that the gap might have slightly widened in Texas, over the same period that TAAS scores suggested it was closing.

At the same time, evidence of higher grade retention and dropout rates in Texas has accumulated (Haney, 2000), and outright cheating on results has been documented (Hoff, 2000; Johnston, 1999). Haney (2000) found that increased dropout rates in Texas were especially high among Latino and African American students. Haney linked these dropouts with aggregate score gains, arguing that Texas students' gains in NAEP scores were directly related to exclusion rates. Haney concluded that the apparent rise in scores was illusory. Tracking these dropouts, Haney found that approximately one-third of students leave school before graduation, often as a direct result of being retained in grade 9 by schools focused on obtaining good HST scores.

Moreover, evidence from Texas points to considerable teaching to the test, again, especially intensively in low-performing schools serving pockets of poverty and minority students. Such teaching to the test can give the appearance of "closing the gap" when that is not occurring, because of the criterion contamination this behavior causes (Carnoy, Loeb, & Smith, 2000; McNeil & Valenzuela, 2000). For such reasons, Popham (1999) concludes that judgments about school quality based on changes in HST scores are not likely to be valid.

Despite the limitations of the empirical studies thus far conducted, it is not unreasonable to suggest that the evidence points to the very kinds of changes predicted by some of the motivational theories we reviewed. Under HST, outcome-focused behavior change does indeed occur, no doubt due to the power of rewards and sanctions. Yet these changes are often a "monkey's paw," representing deleterious classroom and institutional processes that hurt especially the most vulnerable populations. This in turn suggests that the HST policies may be exacerbating the problem they are designed to correct. Nonetheless, these negative results should not be taken as a definitive summary or as the final chapter. We reiterate that the results of HST policies are still unfolding. At the same time, there are clearly problems with the impact of HST, which predictably motivates counterproductive processes in both classroom and school administration arenas. It is ultimately the economically disadvantaged students, as well as the frontline teachers who serve them, that appear to suffer the most serious costs.

MOTIVATION THEORIES AND EDUCATIONAL REFORM

One conclusion we reach from reviewing this material concerns the relevance of debates between theories of motivation to policies attempting to legislate competence in schools. We have underscored how policymakers have, at both state and federal levels, enacted policies driven by a naive behaviorism in their attempts to motivate improvements in school performance. Unlike behaviorists, however, they have applied rewards and sanctions contingently upon performance outcomes (test scores) rather than desired behaviors, and they have also not appreciated the well-documented deleterious effects that even a well-structured contingency management approach can yield in domains such as learning and education. At the same time, results bespeak the power of such contingencies to change behavior, if not necessarily for the better.

The specific deleterious effects of such high-stakes policies have been predictable, and sometimes explicitly predicted by some motivational perspectives, whereas others have not addressed these "collateral" conse-

quences. Most notably, self-determination theory has specifically argued that these reforms would foster teaching to the test, narrowing of the learning experience, relatively poor transfer of knowledge, and increased dropouts among those most disadvantaged (Ryan & LaGuardia, 1999; Ryan & Stiller, 1991). All of these predictions have come home to roost in states that have used HST. Similar deleterious effects may have been predictable from some goal theories as well, particularly the perspectives of Dweck (2002) and Midgeley et al. (2001). These views stand in contrast to the views of those who have advocated greater emphasis on performance goals in classrooms linked with high stakes. Rather than facilitating achievement in at-risk students, such motivational interventions seem especially harmful to vulnerable groups. If nothing else, one lesson we should learn from this is that our theoretical and empirical differences are far from merely "academic."

SOME POLICY IMPLICATIONS

Empirical research is critical to informed policy in education, yet the gulf between the types of reforms suggested by educational research and those being implemented by policymakers appears vast. In part, this stems from the fact that policymakers want clear-cut actions, an urge that the implementation of high-stakes and standardized tests appears to satisfy. At the same time, as the effects of this "natural experiment" unfold, we should make sense of the results and outcomes, learning from the implementation (Hamilton, Stecher, & Klien, 2002). To do so we use the lens of SDT, which has specifically predicted many of these effects.

The SDT perspective suggests that tests can have both informational and controlling effects, and the high-stakes approach has largely undermined the informational value of standardized testing. Policymakers might first remember the purpose of testing: To gain information that can be used to advocate for those assessed. The informational use of tests would be represented by using tests to help identify students who may be most disadvantaged and in need of resources, and perhaps to identify curricular issues or problems with teaching methods. Informational use of tests would also require that they be useful to teachers—that they would not simply be a scorecard at the end of a year, but a useful indicator of gaps in knowledge, while there is still time to redress the situation. The current practice in most HST states is year-end testing, with individual score reports often not going to the teacher who taught the subject matter until the following year, which is of little educational benefit to the participating students.

More importantly, the positive effects that can come from the informational function of tests are undermined when policymakers place high stakes behind test outcomes. The implementation of high-stakes contingencies based upon test performance, which are intended as "motivators," actually do have a strong impact. They lead to practices that distort the validity of the outcomes, and that instigate deleterious institutional behaviors. They narrow curricula, decrease individualized approaches, and make even more vulnerable those students who are at risk for retention and dropout. Taking the stakes out of the heart of testing policies would make the testing more informationally valuable. Whereas high stakes contaminate the criterion, removing the stakes might make standardized testing all the more useful, and less engendering of damaging processes.

A further important issue concerns the fact that any standardized paper-and-pencil measure may be a poor fit with the learning and performance styles of some learners, making it inappropriate as a sole criterion for attaining credentials. "One size fits all" as a model of outcomes is a regressive step in schools, where for years educators have been developing approaches to address more effectively diversity in learning styles, interests, and skills. Moreover, basing high-stakes decisions on a single indicator is unfair to students, and even unethical, given the lack of validity of most of the tests for this purpose (American Educational Research Association, 2000). Accountability does not need to be actualized by only a single, uniform test. Instead, schools that use alternative approaches and curricula could develop and justify alternative assessments. This would in fact lead toward greater innovation rather than drying up choice and diversity, which has been the trend under HST.

In a context where testing was used for informational rather than controlling purposes, educational experiments might actually permit better judgement on their effectiveness, and indeed catalyze more innovation and progress. For instance, there appears to be growing evidence that high schools organized into small schools or learning communities, where personalized attention is available, are effective in promoting achievement (e.g., Howley & Bickel, 2000; Meier, 1998; National Research Council, 2004). Effective non-high-stakes testing could both verify and extend such data, and be a basis for justifying such structural reforms to policymakers and taxpayers. Similarly, an innovative and highly successful experiment in redesigning urban high schools was the creation of the New York Performance Standards Consortium (NYPSC) schools. These schools had served as models and were recognized for their high educational standards, high attendance, and low dropout and college success rates (Darling-Hammond, Ancess, & Ort, 2002). However, NYPSC schools were built around a portfolio-based assessment system that was deemed integral to the form of instruction, which itself was highly individualized rather than standardized. These successful schools are being forced under New York's rigidly enacted high-stakes regimen to change their practices and teach to the tests. In a non-high-stakes atmosphere, standardized tests might have been one among several useful indices affirming their efficacy, but in a high-stakes atmosphere, the curriculum will be bent to the shape of tests, and a successful innovation stifled.

An important take-home point is that the introduction of high stakes behind test scores distorts the validity of tests as an indicator of true excellence in the classroom, or of school quality. Amrein and Berliner (2002) described this distortion effect by evoking the *Heisenberg Uncertainty Principle*. According to the principle, the more important any quantitative indicator becomes in decision making, the more likely it will distort and corrupt the process it is intended to monitor. Because high-stakes policies attach reward and punishment contingent on test scores, they especially have such distorting and corrupting consequences. They make the meaning of test score changes questionable, and they make inferences from score changes problematic. Combined with the fact that most states use percentage-passing rates on tests that are not equivalent from year to year, many of the inferences concerning the outcomes of reform are without a sound scientific basis.

While the massive educational experiment called HST is still in progress, it is clear that what is driving national and state education policy is not sound educational theory or research, but a blend of political expediency and naive faith in the efficacy of rewards and punishments. Research that has accumulated points to complex, and often negative, effects that may not be willingly received by politicians who, in many instances, may "have already decided" that HST is an effective approach (Hamilton et al., 2002). On a more positive note, we suggest that current work in the field of motivational psychology is highly relevant to, and capable of, meaningfully informing the process of education reform. The question is, who might be listening?

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PART V

Demographics and Culture

CHAPTER 21

Gender, Competence, and Motivation

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The second half of the 20th century witnessed remarkable changes in women's achievements in the realms of education and occupations. For example, in 1970, 8% of MD degrees went to women, compared with 41% in 1996 (Costello & Stone, 2001; Rix, 1988). In 1975, 31% of all college and university professors were women, compared with 42% in 1998 (Costello & Stone, 2001). Yet many occupations have not seen these dramatic shifts and remain highly gender-segregated. For example, women were 0.5% of auto mechanics in 1975 and 0.8% of auto mechanics in 1998 (Costello & Stone, 2001).

Both theory and research in psychology place strong emphasis on the role of motivation and personal competence beliefs in determining achievements and, in particular, in determining gendered patterns of achievement behaviors. In this chapter, we focus first on gender and competence beliefs, reviewing Eccles's expectancy–value theory, Bussey and Bandura's social cognitive theory, empirical data on and developmental approaches to understanding gender and competence beliefs, and the role of stereotype threat in creating gender differences in competence beliefs. We then turn to research and theory on gender and achievement motivation, first considering McClelland's classic theory and research and critiques of it, followed by motive to avoid success, and most recently, achievement goal theory. Finally, we consider the role of ethnicity and culture in determining patterns of gender differences in competence beliefs. First, however, we highlight three overarching issues: the importance of a balanced consideration of gender differences and gender similarities, the importance of adopting a developmental approach, and the distinction between gender as a person variable and gender as a stimulus variable.

GENDER DIFFERENCES AND GENDER SIMILARITIES

Scholars approaching topics in gender and psychology tend to be drawn to findings of gender differences, as the moth is to the flame. Nonetheless, numerous meta-analyses have found evidence of psychological gender

similarities in areas as diverse as mathematical performance (Hyde, Fennema, & Lamon, 1990), verbal ability (Hyde & Linn, 1988), and self-esteem (Kling, Hyde, Showers, & Buswell, 1999; see Hyde & Plant, 1995, for a review). At the same time, moderate to large gender differences have been found in areas such as aggression (Eagly & Steffen, 1986; Hyde, 1984) and sexuality (Oliver & Hyde, 1993). Consideration of questions of gender, competence, and motivation should provide a balanced acknowledgment of both gender differences and gender similarities. Both are interesting and important.

A DEVELOPMENTAL APPROACH

Gendered patterns of motivation and competence are not present at birth (or if they are, no one has yet presented the evidence). Rather, they emerge in the course of development, as a result of the cumulation of experiences with parents, peers, teachers, sports, and so on. If we are to understand gender differences in motivation and competence, we must understand their developmental origins. Therefore, we present developmental evidence whenever possible in this review.

GENDER AS A PERSON VARIABLE VERSUS GENDER AS A STIMULUS VARIABLE

Gender may be conceptualized as either a person variable or a stimulus variable (e.g., Deaux & Major, 1987; Grady, 1979); that is, gender can, on the one hand, be thought of as a characteristic of the person, an individual differences variable. Research on psychological gender differences implicitly assumes this approach. On the other hand, gender can be conceptualized as a stimulus variable. A person's gender serves as a cue to others interacting with and responding to that person, and people respond differently depending on whether they are interacting with a man or a woman, or a boy or a girl. The classic research assessing sex bias in the evaluation of work using the John McKay/Joan McKay paradigm (reviewed by Swim, Borgida, Maruyama, & Myers, 1989) used this approach of considering gender to be a stimulus variable. As we consider gender, competence, and motivation, we should be alert to findings of gender differences; at the same time, we should be mindful of the fact that gender is a stimulus variable. The individual's gender affects the responses he or she receives from others, which in turn may influence his or her motivation or self-efficacy.

GENDER AND COMPETENCE BELIEFS

Theory

Major theorizing on gender and competence beliefs comes from Eccles's expectancy–value theory (e.g., Eccles, 1987a; Fredricks & Eccles, 2002; Meece, Eccles-Parsons, Kaczala, Goff, & Futterman, 1982) and Bussey and Bandura's (1999) cognitive social-learning theory. Each is reviewed in turn.

Eccles: Expectancy–Value Theory

Eccles' expectancy–value theory of achievement-related choices is a general model that, at the same time, is particularly dedicated to understanding gender differences in these choices (Eccles, 1987a, 1987b, 1994). According to the model, a person will undertake a challenging achievement task—such as taking calculus in high school or applying to medical school—only if he or she expects to succeed at it and values the task. Here, we focus on the path to expectations for success; the question of values is discussed by Eccles in Chapter 7, this volume.

A major force shaping expectations for success at a particular achievement task is one's self-concept of one's abilities (Eccles, 1994), or competence beliefs. Gender differences in competence beliefs, then, will have a profound influence on the achievement tasks that males and females undertake. Competence beliefs themselves, according to the model, are shaped by not only people's past achievement experiences but also a variety of social and cultural factors, including (1) the behaviors and beliefs of important socializers, such as parents and teachers; and (2) cultural gender roles that prescribe certain qualities, such as aggressiveness, as appropriate or inappropriate for males or females, and gender stereotypes about particular activities (e.g., professional football is played only by men).

Numerous empirical studies by Eccles and others have provided support for links in this model, including the gender-related links. This research is reviewed later in the chapter.

Bussey and Bandura: Social Cognitive Theory

Bussey and Bandura (1999) extended Bandura's (1986) social cognitive theory to address the issue of gender learning and development. Their model of triadic reciprocal causation, which is intrinsically developmental, specifies that person factors, behavior, and environment all exert reciprocal influences on each other. The individual's perceived self-efficacy in a given domain, such as mathematics, is one kind of person factor. (We take Bussey and Bandura's construct of self-efficacy to be roughly equivalent to Eccles's concept of competence beliefs.) According to the model, self-efficacy has a profound impact on behavior; as Bussey and Bandura put it, "Perceived efficacy is, therefore, the foundation of human agency" (1999, p. 691). It influences the challenges that people undertake, and how long they persevere in pursuing a goal.

Self-efficacy comes into play in a particularly powerful way in the area of occupational choice. Most adolescents and young adults eliminate vast numbers of jobs from personal consideration, because their sense of self-efficacy tells them that they cannot do the job or master the knowledge necessary for the job. Gender enters the picture, because occupations are highly gender-segregated (Costello & Stone, 2001). Many adult women and men, then, are making gendered occupational choices. A number of influences are involved, including hostile environments for women in some occupations, but one powerful factor is self-efficacy beliefs that have developed over time. Male college students feel about as efficacious in traditionally female-dominated careers as they do in traditionally male-dominated careers; female undergraduates, however, have a weaker sense of efficacy in traditional male occupations compared with traditional female occupations (Betz & Hackett, 1981). Gender differences disappear, though, when students judge their efficacy at a task presented in a stereotypically feminine context (Betz & Hackett, 1983), suggesting that women's sense of self-efficacy is not chronically low, but rather responds to situational factors related to gender, as the research on stereotype threat, reviewed below, demonstrates.

Mathematics skill and self-efficacy are a major factor in occupational choice, because they are essential for scientific and technical careers. Mathematics self-efficacy encourages choice of mathematics courses in high school and college, which further bolsters mathematics self-efficacy. Research shows that the effect of gender on mathematics performance is mediated by perceived self-efficacy (Pajares & Miller, 1994). Moreover, mastery experiences eliminate gender differences in mathematics self-efficacy (Schunck & Lilly, 1984).

Self-efficacy, according to social cognitive theory, develops in four ways (Bussey & Bandura, 1999): (1) through graded mastery experiences; (2) through social modeling, such as seeing people like oneself succeed because of effort; (3) through social persuasion, in which another person expresses confidence in one's ability to succeed; and (4) by reducing stress and depression, building physical strength, and changing misinterpretations of bodily states. The second factor, social modeling, is particularly relevant to gender and occupational choice. In everyday life and in the media, children observe the gender segregation of occupations—that almost all nurses and elementary school teachers are women, and that almost all professional basketball players and all presidents of the United States are men. Girls therefore see people like themselves—women—succeeding as nurses and teachers, and boys see people like themselves—men—succeeding as basketball players and presidents. The result is that girls develop a greater sense of self-efficacy at being a nurse or teacher, making them likelier to pursue that career choice. Boys develop a greater sense of self-efficacy in athletics and leadership roles, encouraging a choice of careers in those areas.

Numerous empirical studies by Bussey, Bandura, and others support various aspects of social cognitive theory as it applies to gender differentiation in self-efficacy and

achievements (reviewed by Bussey & Bandura, 1999). For example, concerning social persuasion as one of the factors influencing self-efficacy, research shows that as early as kindergarten, mothers have higher expectations for their daughters in reading, and higher expectations for their sons in math (Lummis & Stevenson, 1990). When boys and girls are matched for math performance, parents rate daughters' mathematical ability as less than sons' (Yee & Eccles, 1988). In a daily checklist study, when praising children for an achievement, mothers of sons were more likely than mothers of daughters to connect the praise to the child's ability (Pomerantz & Ruble, 1998).

A Comparison of the Two Theories

Both Eccles and colleagues' expectancy–value theory and Bussey and Bandura's social cognitive theory contribute to a fuller understanding of how achievement expectations, beliefs, and behaviors become gendered over time. At this point, it is worthwhile to highlight some of the similarities and differences we see in these two approaches in order to understand how they might best be used to inform future research.

These models are similar in that both place importance on the influence of socializers such as parents and peers, the impact of expectations for success, and the pivotal role of individual choice in shaping beliefs about gender and achievement. However, there are also subtle differences in these models in their specific focus on how these variables combine to predict and explain the intersection of gender and achievement. For example, Bussey and Bandura elaborate on specific processes of social learning that might unfold to explain how parents' beliefs and behavior about achievement are learned by children. Because parents serve as models in this framework, the extent to which children learn gendered beliefs from parents should vary in response to specific parameters, such as the attention children focus on the model at a given time, the similarities between the child and the model, and whether there are inconsistencies between the model's behavior and what the model explicitly teaches. Processes such as these help specify when and how socializers affect children's beliefs about achievement. Adding processes such as these to the expectancy–value framework should be helpful. Second, the Eccles and colleagues and the Bussey and Bandura models also differ slightly in how they treat the relationship between competence beliefs and task value. Specifically, Eccles's model, as an explicit expectancy–value model, predicts that achievement choices are impacted both by expectancies for success and task values. In this way, believing that one is skilled at a task and that the task is worthwhile can operate independently. In this model, task value is determined by factors in addition to competence beliefs, such as short- and long-term goals, and these values can contribute to expectancy beliefs, as well as combine with them to predict achievement behavior. In contrast, Bussey and Bandura's model implies that efficacy beliefs affect achievement choices, and the role of values is given little attention.

These theories provide frameworks within which to describe and predict achievement behaviors, and how these behaviors might differ by gender. Although similar in some ways, they each offer specificity in different areas. It is important to draw from each theory in order for us, as researchers, to reach a more thorough understanding of gender, competence, and achievement.

Gender Socialization and the Gender Segregation Effect

In this section, we shift the focus to empirical findings on the role of parents, teachers, and peers in the development of gender differences in competence beliefs. A thorough review of all studies on gender socialization relevant to motivation and competence is beyond the scope of this chapter. Bussey and Bandura (1999) reviewed many of the relevant studies. Here, we focus on some key ones and others that are exemplars of various categories of evidence.

Lytton and Romney (1991) conducted a meta-analysis of 172 studies of parents' differential rearing of boys compared with girls. The studies used a variety of methods, including reports by the child, interviews and questionnaires for parents, and direct observations. The studies also covered a wide array of domains that included encouraging achievement, warmth, encouraging dependency, restrictiveness, discipline, and encouraging sex-typed activities. The most relevant domain for this discussion of gender and the development of competence is encouragement of achievement. For North American studies, the effect size was d = 0.05; that is, there was essentially no difference in the extent to which parents encouraged achievement in girls compared with boys. Does that imply that parental socialization is not a force? Not in the least. A more substantial effect size was found for encouragement of sex-typed activities (d = 0.34). Measures in these studies assessed practices such as encouraging boys to play with trucks or to shovel the sidewalk, and girls to play with dolls and help with vacuuming. To the extent that parents encourage boys to play with trucks, they are building a sense of competence in a particular domain in their sons more than in their daughters. The same is true for encouragement of girls in activities such as playing with dolls. This meta-analysis is helpful insofar as a general impression exists that parents treat boys and girls entirely differently; the results, in contrast, show that, on the whole, parents treat their sons and daughters quite similarly. Encouragement of sex-typed activities, however, is a major exception, and this tendency can easily lay the foundation for different senses of competence in girls compared with boys; that is, these results indicate that girls and boys will become differentiated not in their global sense of competence, but rather in their sense of competence in specific domains.

Teachers, too, are socializers. Research based on classroom observations in preschools and elementary schools indicates that teachers treat boys and girls differently. Teachers, on average, pay more attention to boys than to girls (DeZolt & Hull, 2001; Golombok & Fivush, 1994). When teachers praise students, the compliments go to girls for decorous conduct and to boys for good academic performance (Dweck, Goetz, & Strauss, 1980; Golombok & Fivush, 1994). Teachers, then, are socializing a sense of academic competence for boys more than girls.

Maccoby (1990, 1998) has argued that one of the most potent forces encouraging gender differentiation is the largely self-imposed gender segregation that occurs in childhood. By 3 years of age, children have a tendency to seek out and play with other children of their own gender and to avoid playing with children of the other gender. The tendency grows stronger by the time children are in elementary school. It occurs regardless of the gender socialization principles in their families, and in villages in developing nations as much as in the United States. Importantly, all-girl and all-boy groups differ in terms of their activities. Boys' play is rougher and involves more risk, confrontation, and striving for dominance. All-girl groups are more likely to use conflict-reducing strategies in negotiating with each other and to engage in more self-disclosure. All-girl groups also tend to maintain communication with adults, whereas boys separate themselves from adults, test the limits, and seek autonomy. Later, in adolescence, heterosexual attraction brings the sexes back together again, but that cannot undo the effects of the years of segregation.

The net effect of gender segregation in childhood, and the differentiation of activities intertwined with it, is that girls and boys have success experiences and build their sense of competence in different domains. Boys develop a sense of competence in rough, active pursuits that will contribute to competence beliefs in athletics and other competitive domains. Girls' practice at communication and maintaining harmonious relationships within the group will build their sense of competence in the domain of relationships. And these are precisely the domains in which the culture at large expects competence from girls and women compared with boys and men.

Development of Competence Beliefs in Girls and Boys

As reviewed earlier, several processes might contribute to gender differences in competence beliefs. Therefore, a crucial initial question surrounding gender and motivation within achievement settings concerns whether there are indeed gender differences in competence beliefs. If gender differences in competence beliefs exist, the next pressing issues are when and how these differences emerge. At first blush, evidence concerning the presence versus absence of gender differences in competence beliefs is mixed. In general, there is little empirical evidence to suggest that gender differences in competence beliefs exist at a global level. For example, most studies investigating academic competence beliefs in general indicate no or very small gender differences (e.g., Cole et al.,

2001; Jambunathan & Hurlbut, 2000). Although these studies report data from U.S. samples, this pattern of gender similarity appears to characterize non-U.S. samples as well. A study of elementary school students' achievement-related beliefs in several cities around the world (East and West Berlin, Berne, Los Angeles, Moscow, Prague, and Tokyo) revealed that girls and boys hold similar beliefs about their general academic competence (Stetsenko, Little, Gordeeva, Granshof, & Oettingen, 2000).

Research addressing competence beliefs within specific domains reveals a pattern that is more gender-differentiated. For example, several studies have found that boys report more competence in math, science, and athletics, and girls report less competence in these domains (Crain, 1996; Debacker & Nelson, 2000; Eccles, Wigfield, Harold, & Blumenfeld, 1993; Fredricks & Eccles, 2002; Jacobs, Finken, Griffin, & Wright, 1998; Lummis & Stevenson, 1990; Marsh & Young, 1998; Malpass, O'Neil, & Hocevar, 1999; Wigfield et al., 1997). A meta-analysis of studies of gender differences in attitudes toward math indicated that boys had somewhat higher competence beliefs in math than girls, and that this difference was widest during high school (Hyde, Fennema, Ryan, Frost, & Hopp, 1990). In contrast, girls report feeling more competent than do boys in language arts (Crain, 1996; Eccles, Wigfield, et al., 1993; Lummis & Stevenson, 1990; Marsh & Young, 1998; Wigfield et al., 1997). It is noteworthy that these domain-specific gender differences have emerged among samples from Taiwan and Japan, as well as the United States (Lummis & Stevenson, 1990).

Consistent with theorizing by Eccles and her colleagues, girls and boys come to develop nuanced beliefs about gender, and these beliefs are intimately tied to specific achievement domains. The developmental patterns of gender differences in competence beliefs within different domains are less clear. Although there is evidence to suggest that there are larger gender differences in competence beliefs among older children than younger children (Eccles, 1987a; Eccles, Adler, & Meece, 1984; Hyde, Fennema, Ryan, et al., 1990), most work has not examined the competence beliefs of the same group of individuals over a long enough span of time to determine the trajectory of gender differences across different ages.

However, a recent study provided a comprehensive analysis of gender differences in three different domains from childhood through adolescence (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002). In this longitudinal study, participants reported their competence beliefs in math, language arts, and sports from first through 12th grades. The results indicated that the patterns of gender variations were specific to domain. In the domain of math, although in first grade boys' beliefs in their math competence was higher than those of girls, the difference disappeared in high school. The nature of this pattern, however, is revealing about competence beliefs in math more generally. Both girls' and boys' feelings of competence in math decreased through childhood and adolescence. However, because boys' competence beliefs decreased at a faster rate than those of girls, by late high school, girls' and boys' competence beliefs concerning math were the same. These results suggest that there might be more global social or contextual processes operating within schools and beyond that cause both genders' math competence beliefs to decrease (Eccles & Midgley, 1989; Eccles, Midgley, et al., 1993) and thereby converge over time. These effects are different from those reported in earlier work that revealed a larger gender difference in math competence in high school than in middle school (Eccles, 1994). Because the data collected from the cohort reported by Jacobs et al. (2002) were more recent than those reported by Eccles (1994), this narrowing gender difference from childhood through adolescence could be taken as a promising sign of social changes that promote greater gender equality. Consistent with this, meta-analyses of gender differences in math performance revealed larger gender differences among older studies than among more recent studies (Hyde, Fennema, & Lamon, 1990). Although this is promising, it is still worrisome that both boys' and girls' beliefs in their mathematics competence plummet through elementary and secondary school.

The pattern of results found by Jacobs et al. (2002) concerning competence in language arts tells a different story. Girls believe they are more competent in language arts than do boys, and this difference actually becomes more pronounced over time. In this domain, the widening gender gap occurred as a consequence of boys' accelerated decline in competence beliefs concerning language arts. As in the math domain, both genders evidenced a decline in competence beliefs in language arts, but boys' decline was more steep .

These results lend themselves to a discussion of the effects that varying levels of competence might have on later academic, extracurricular, and career choices. In the Jacobs et al. (2002) study, the researchers also assessed students' valuation of math and language arts, and found that beliefs about competence predicted the extent to which children valued the given domain. As a consequence, children's feelings of competence are likely to affect their interests and the activities that they pursue (Eccles, 1994; Eccles & Midgley, 1989; Eccles et al., 1984). This becomes increasingly important as children grow older, because course taking in high school and college becomes increasingly more driven by interests.

Before continuing, it is worth noting that the gender differences in *beliefs* about competence exceed any differences in actual achievement. For example, meta-analyses indicate that there is only a small gender difference in math performance favoring males, and that this becomes apparent only in late high school and college (d = 0.32; Hyde, Fennema, & Lamon, 1990). Similarly, a meta-analysis of studies on gender and verbal abilities revealed essentially no difference (d = –0.11; Hyde & Linn, 1988). The presence of gender differences in competence beliefs, especially given that there are virtually no differences in actual achievement, inspires curiosity concerning environmental influences that affect children's beliefs about competence. For a review of how parents affect children's beliefs about competence and their achievement behaviors, see Chapter 15, this volume.

Competence Beliefs and Stereotype Threat

Steele introduced the concept of stereotype threat to capture the ways in which stereotypes can have a deleterious impact on performance (Steele, 1997; Steele & Aronson, 1995). His original research dealt with ethnic stereotypes—specifically, the stereotype that African Americans are less intellectually competent than their white peers. When the researchers activated stereotype threat by telling participants that a test was diagnostic of intelligence, highly talented black students at Stanford performed worse than a control group that was told the test was not diagnostic of intelligence. White students' performance was unaffected by instructions about the test.

Later researchers tested whether stereotype threat applies to gender stereotypes, in particular, the stereotype that women are bad at math (Brown & Josephs, 1999; Quinn & Spencer, 2001; Spencer, Steele, & Quinn, 1999; Walsh, Hickey, & Duffy, 1999). In an experiment by Spencer et al. (1999, Study 2), male and female college students with equivalent mathematics backgrounds were tested. Half were told that the math test had shown gender differences in the past, and half were told that the test had been shown to be gender-fair, and that men and women had performed equally on it. Under stereotype threat conditions, women underperformed compared with men, whereas when gender fairness was assured, there were no gender differences in performance. This effect has been replicated a number of times (Brown & Josephs, 1999; Davies, Spencer, Quinn, & Gerhardstein, 2002; Spencer et al., 1999).

What mediates the effect of stereotype threat conditions on performance? Several possible mediators have been proposed, including self-evaluative anxiety (Spencer et al., 1999; Steele, 1997), dejected mood (Keller & Dauenheimer, 2003), and feelings of competence or self-efficacy (Spencer et al., 1999; Steele, 1997). Here, we focus on sense of competence. Spencer et al. (1999, Study 3) specifically tested whether sense of self-efficacy, measured by items such as "I am uncertain whether I have enough mathematical knowledge to do well on this test," mediated the experimental effects of stereotype threat on performance on a mathematics test. The results indicated that self-efficacy was not a significant mediator. However, this experiment (Spencer et al., 1999, Study 3) did not include a condition of explicit stereotype threat activation; it simply gave no information about the math

test or instructed participants that there were no gender differences on the test. Therefore, the failure to find mediation effects for self-efficacy may have been a result of the absence of an experimental condition involving explicit stereotype threat activation. Clearly these questions should be pursued with additional research.

A developmental approach is useful in understanding the origins of these effects. Ambady, Shih, Kim, and Pittinsky (2001) found that gender stereotype threat effects on mathematics performance occurred among middle school girls, as they expected. Surprisingly, the same effect was found for lower elementary girls, but not for upper elementary girls. This particular study involved Asian American girls and also activated their ethnic identity in some conditions, which improved their performance. These results seem to derive from a complex interplay of gender and ethnic stereotype awareness. Perhaps most importantly, they indicate that the effects of gender stereotype threat appear early. Unfortunately, sense of competence in mathematics was not measured in this study.

The research on stereotype threat demonstrates that although mathematics performance, competence, and gender differences in competence are generally thought of as trait-like, one's sense of competence at a particular task can also be quite sensitive to situational cues or context. Thus, gender differences in feelings of competence may appear or disappear, depending on the task and contextual cues.

Expectations and Performance Feedback

The research on stereotype threat indicates that performance can be undermined when group status is salient and one's group is believed to be disadvantaged in that particular domain. This raises the possibility that, by undermining performance, stereotype threat can undermine feelings of competence. With this in mind, it is worth examining how individuals respond *after* they receive feedback about their performance within gender-stereotyped domains.

Limited research exists on the effects of performance feedback (either positive or negative) on females' and males' motivation within gender-typed domains. One notable study examined third graders' and junior high school students' achievement-related beliefs just before and a few days after taking a math exam (Stipek & Gralinski, 1991). Consistent with the work reviewed earlier, prior to the test, boys expected to do better on the exam than girls did. However, the focus of the study was students' reactions after they received their scores. Girls and boys attributed their success and failure to different sources. Girls who performed well on the test were less likely to attribute their success to high ability than were boys who performed similarly well. These girls did not reap the confidence-building benefits of success. Moreover, girls who performed poorly were more likely to attribute their failure to low ability and to want to hide their exam papers from others, compared with boys who performed similarly. These girls made more harsh attributions about their performance. Finally, the researchers found that girls' attributional patterns could ultimately lead them to avoid math activities. This study nicely illustrates the insidious nature of stereotypes within achievement domains. Performing in the domain is only the beginning of the process, and research attention should also focus on what happens after individuals find out how they performed. Receiving feedback and either altering or affirming one's personal beliefs about competence in a given domain are all part of the continuing process whereby individuals develop beliefs about their abilities.

The previous study involved a situation in which individuals received fairly objective feedback about their performance (i.e., scoring math tests relies very little on subjective judgments). However, interpreting feedback is more difficult when the criteria for evaluation are less clear, as might be the case in occupational and interpersonal contexts. Crocker and Major (1989) have examined the difficulty that individuals in stigmatized groups can have when interpreting evaluations from others who are aware of their group membership. Specifically, these researchers pointed out that when stigmatized individuals interpret feedback from others, there is ambiguity, because the feedback could be based on actual performance, or be tainted by information about group membership. For example, imagine a woman who works for a male supervisor in a primarily male engineering firm. Upon receiving her end-of-the-year evaluation, she might be cautious about how to interpret it. Specifically, if the evaluation is positive, she might wonder whether her evaluation is based on her true merit or influenced by the fact that she is a woman. For example, she might wonder whether her boss judged her by lower standards than those used for her male peers or was afraid of giving negative feedback because he was concerned that she might think he was sexist. Although attributional ambiguity can buffer the effects of negative feedback on self-esteem (Crocker & Major, 1989), this example illustrates how it can prevent stigmatized individuals from fully enjoying positive feedback (Crocker, Voelkl, Testa, & Major, 1991).

The research described earlier identifies some of the difficulties women encounter when performing in domains in which men are believed to perform better than women. There is surprisingly little research investigating how men behave when they perform in domains in which women are believed to perform better than men. For example, it is very possible that boys make different attributions for success and failure than girls on reading-related tasks. Perhaps boys in these situations are less likely to attribute success to high ability and more likely to attribute failure to low ability. Advancing research within domains believed to be both female- and male-typed will help us better understand the system that is set in motion when an individual performs in a domain where his or her group is believed to be disadvantaged.

GENDER AND ACHIEVEMENT MOTIVATION

History of Research on Gender and Achievement Motivation

McClelland's traditional method of measuring achievement motivation, developed in the 1950s, uses a projective technique in which people's stories in response to an ambiguous picture cue are scored for achievement imagery (McClelland, Atkinson, Clark, & Lowell, 1953). Most of the classic literature reviews concluded that there were gender differences in achievement motivation, with females showing a lower level of motivation than males (Hoffman, 1972; Tyler, 1965). In the late 1960s and 1970s, these differences were thought to be important in explaining why women had not achieved as much as men in the realm of adult occupations. Theories were constructed to explain the developmental forces, such as socialization, that might lead girls to display less achievement motivation (Hoffman, 1972). It was also believed that females were motivated more by a need for affiliation than by a need for achievement (Hoffman, 1972).

In their watershed review, however, Maccoby and Jacklin (1974) challenged these views, concluding that there was little evidence for lower achievement motivation in females. Their conclusions are complicated by the variety of ways in which achievement motivation can be measured. In the neutral or relaxed condition for the McClelland et al. (1953) measure, females actually show higher achievement motivation than males. Under achievement arousal conditions, however, males' achievement motivation increases sharply, whereas females' does not.

A number of scholars criticized McClelland and Atkinson's classic theory of achievement motivation as applied to questions of gender (e.g., Spence & Helmreich, 1983). Stewart and Chester (1982) noted substantial flaws in the experimental methods used by McClelland and Atkinson to arouse achievement motivation. McClelland and Atkinson's theory specified that achievement motivation should increase under achievement arousal conditions—for example, when participants were told that the test measured capacity to act as a leader. Males' behavior was consistent with this prediction, whereas females' behavior was not, so McClelland and Atkinson excluded females from later empirical studies. Indeed, McClelland went so far as to say: "Clearly we need a differential psychology of motivation for men and women" (1966, p. 481), never questioning the adequacy of his own theory, but instead concluding that someone else would have to develop a theory to account for women's behavior.

In an effort to create new theory and methods, Spence and Helmreich (1983) developed a nonprojective, self-report measure of motivation that, additionally, expanded on the classic unidimensional view of

achievement motivation to recognize multiple domains of achievement motivation. Their research uncovered three dimensions of achievement motivation: work, mastery, and competitiveness.

Also following on the research from the 1950s and 1960s indicating that females had a lower level of achievement motivation than did males, evidence suggests that women's achievement motivation has increased over time. Veroff, Depner, Kukla, and Douvan (1980) found that achievement motivation increased among American women from 1957 to 1976, and Jenkins (1987) found similar increases from 1967 to 1981. The most recent studies show no gender differences in achievement motivation (Mednick & Thomas, 1993).

What can account for these changes over time? It seems likely that the opening of educational opportunities and career options for women over the last three decades has increased achievement motivation for women as they gain experience in careers, and for girls as they anticipate jobs with exciting possibilities for achievement. Jenkins (1987) found that achievement motivation in female students who were college seniors in 1967 predicted their employment in achievement-oriented occupations 14 years later. Even more intriguing is the finding that women employed as college professors or as business entrepreneurs showed significant increases in their achievement motivation compared with their scores in college, whereas those in other occupations showed no change in achievement motivation (Jenkins, 1987).

Motive to Avoid Success

Seeking alternatives to traditional models of achievement motivation, Horner (1969) formulated the construct of a motive to avoid success, or fear of success, among bright, high-achieving women. In attempting to understand the gender differences in achievement that were present in the 1960s, Horner observed that achievement situations were more anxiety provoking for females than for males. To measure this phenomenon, Horner devised a projective test in which respondents completed a story that began "After first-term finals, Anne (John) finds herself (himself) at the top of her (his) medical school class." Women wrote about Anne and men, about John.

Men's stories in response to this cue generally indicated happiness and feelings of satisfaction over achievement. Women's responses, in contrast, were far more negative, indicating fears of social rejection, worries about maintaining womanhood, and denial of the reality of success. In Horner's sample from the University of Michigan, 65% of the women showed such negative responses, compared with 10% of the men.

Horner collected her original data in 1965 for her doctoral dissertation. The publication of the findings in 1969 attracted widespread attention from the popular media, and the *Psychology Today* article was required reading for students in many courses. The research was appealing, because it appeared at the time of the emergence of the women's movement and concern over women's equal opportunity. The research seemed to offer a believable explanation for why more women had not succeeded in high-status occupations—they simply feared success.

More than 30 years later, the research does not seem nearly as appealing. It has been criticized on a number of grounds (Mednick, 1989; Shaver, 1976; Tresemer, 1977; Zuckerman & Wheeler, 1975):

1. Other studies using Horner's techniques often found men displaying as much motive to avoid success as women. Therefore, there is no reason to believe that it is found only in women, or even that it is more frequent in women. If that is the case, it cannot be used to explain women's lesser occupational achievements.
2. Anne's success was in a field that, at the time, was stereotyped as male-oriented, namely, medical school. Therefore, the research might not indicate a generalized fear of success so much as a fear of being successful in a way that violates gender stereotypes. Indeed, when Anne was presented as successful in nursing school, women did not show anxiety about her success (Cherry & Deaux, 1978).
3. The research method confounded gender of stimulus person with gender of respondent; that is, women wrote about Anne, and men wrote about John. Perhaps women are not anxious about their own success, but rather Anne's success stimulates anxiety, whether a woman or man writes about her and, in fact, one study showed exactly that (Monahan, Kuhn, & Shaver, 1974).

Today, research on motive to avoid success has virtually disappeared. Nonetheless, it provides an important object lesson on the popular appeal of attributing women's lesser achievements to internalized, intrapsychic factors and how, ultimately, such factors were unsuccessful in accounting for the striking gender differences in occupational achievement that characterized the 1950s and 1960s. As we search for productive research approaches for the future, models that assume widespread intrapsychic deficits in women are unlikely to be productive. The models reviewed next show far more promise.

Gender and Achievement Goal Theory

Achievement goals are cognitive representations that define individuals' desired outcomes concerning competence (Ames, 1992; Dweck, 1986; Nicholls, 1989; see other chapters in this volume for discussions of achievement goal theory). As such, achievement goals orient individuals toward competence and help organize behavior in order to attain competence. Although very little research has been done to examine relationships between gender and achievement goals (Pintrich & Schunk, 2002), two primary questions are of interest. The first concerns whether there are gender differences in the extent to which women and men adopt achievement goals for themselves. The second question concerns whether the processes initiated by the adoption of achievement goals differ depending on gender. Overall, the answers to these questions appear to be somewhat mixed, although most studies do not find large gender differences of either kind.

Several authors have noted the paucity of research on gender and achievement goals (e.g., Pintrich & Schunk, 2002). To begin to remedy this situation, we undertook a brief review of studies in which gender was included in analyses of mastery and performance–approach achievement goals, although gender was rarely the focus of these studies. Our review indicated that many studies reveal no gender differences in self-set mastery and performance–approach achievement goals (e.g., Barron & Harackiewicz, 2001; Fukada, Fukada, & Hicks, 1993; Gernigon & Le Bars, 2000; Pajares, Britner, & Valiante, 2000; Sachs, 2001). However, some studies do report gender differences; in these studies, the general pattern was that females reported adopting higher levels of goals than males, and often higher levels of mastery goals in particular (e.g., Bouffard, Boisvert, Vezeau, & Larouche, 1995; Elliot & Church, 1997; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Nolen, 1988; Pajares et al., 2000; Wentzel, 1993). In order to try to make sense of this mixed set of results, we reexamined these studies to determine whether there was a pattern in the types of studies that revealed differences versus similarities across gender. Specifically, given the data reported earlier suggesting that task domain is a crucial determinant of competence beliefs for females and males, we examined whether the presence or absence of observed gender differences in achievement goals systematically differed by domain.

Overall, this analysis revealed some general patterns. Of the studies indicating that women adopted higher levels of mastery goals than men, two were in psychology (Elliot & Church, 1997; Harackiewicz et al., 1997), one was in language arts (Pajares et al., 2000), one was in science (Nolen, 1988), and two were in academics in general (Bouffard et al., 1995; Wentzel, 1993). In contrast, the domains in which women and men did not show differences in adopted mastery goals seemed to be more stereotypically masculine: one in math (Barron & Harackiewicz, 2001), one in science (Pajares et al., 2000), one in educational research (Sachs, 2001), and two in athletics (Fukada et al., 1993; Gernigon & Le Bars, 2000).

Only four studies revealed gender differences in performance goals. The studies reporting that women adopted higher levels of performance goals than men were in academics generally (Bouffard et al., 1995; Wentzel, 1993), and in psychology (Harackiewicz et al., 1997). Only one of the studies indicated that men adopted higher levels of performance goals than women, and this

was a study of math (Middleton & Midgley, 1997).

Given the apparent domain specificity, suggesting that individuals are more likely to set approach achievement goals in domains where their gender is favored, a fascinating question is whether an inverse pattern would be observed for the adoption of avoidance goals. Performance–avoidance goals are focused on *not* performing poorly relative to others. Specifically, individuals might be more likely to adopt avoidance achievement goals in domains in which their gender is believed to be disadvantaged. Imagine two high school calculus students, Jennifer and Sam. Most likely, both Sam and Jennifer will focus on performing well and achieving success on an upcoming examination. However, if Jennifer is concerned about confirming the stereotype that girls do not perform as well as boys in calculus, then she might also adopt a performance–avoidance goal not to do poorly relative to the boys in the class. This possibility is bolstered by data suggesting that competence beliefs are inversely related to the adoption of avoidance goals (Elliot & Church, 1997). If girls believe they are not as good at math as boys, then girls will be more likely to adopt performance–avoidance goals. Moreover, performance–avoidance goals are associated with a host of negative outcomes, including lower interest and lower performance (Elliot & Church, 1997). This is especially interesting in light of the earlier discussion on the undermining effects of stereotype threat on performance. As more research on avoidance goals accumulates, it will be interesting to determine whether members of the gender that is believed to be disadvantaged in a given domain are more likely to adopt performance–avoidance goals in those contexts.

Finally, few gender differences are evident when considering whether gender moderates the effects of goals on other outcomes. For example, in laboratory studies in which goals are experimentally manipulated, the effects of these goals are typically not found to differ by gender (e.g., Barron & Harackiewicz, 2001; Elliot & Harackiewicz, 1994). However, there is some evidence to suggest that the motivational benefits of adopting performance–approach goals are stronger for males than for females (e.g., Bouffard et al., 1995; Linnenbrink, Ryan, & Pintrich, 2000). In general, there is little consensus on what processes related to achievement goals differ by gender. There is much to be gained from research in the area—both identifying consistent patterns (either patterns of gender similarity or difference) and understanding why those patterns emerge.

Overall, there is much more work to be done in this area to synthesize results across studies, identify meaningful patterns, and gain a better understanding of when gender differences do and do not emerge, but the trends indicate that gender differences in achievement goals depend on domain and are generally consistent with gender stereotypes about competence in domains such as mathematics, athletics, and psychology.

CULTURE AND ETHNICITY

A thorough understanding of gender, competence, and motivation should involve a consideration of the cultural contexts in which gendered beliefs develop and change over time. This includes a consideration of how variations across ethnicity and cultures affect gender roles and beliefs about gender and competence, and how achievement is demonstrated by and expected from each gender. The issues surrounding culture and ethnicity, as they relate to competence and motivation, are addressed in other chapters of this volume (see Chapters 22–26), and as research accumulates, it will be possible to understand better how gender intersects with various social and cultural factors. Here, we review two empirical examples of how gender and cultural norms can affect competence behaviors and beliefs.

One facet of culture concerns the extent to which social roles are divided by gender. As a consequence, we might expect larger gender differences in motivation and achievement among groups that adhere to more rigid gender roles. However, layered on top of traditional roles is a more dynamic process, in which some cultures are becoming more egalitarian in terms of gender. Cialdini, Wosinska, Dabul, Whetstone-Dion, and Heszen (1998) proposed a process by which individuals from cultures that have seen social movements toward gender equality might reject their traditional roles and respond in nontraditional ways. The cultural norm examined in this study involved the traditional expectation that women be modest about their achievements and successes. Cialdini et al. argued that American women, compared with Polish women, would respond in a way counter to the traditional female role (less modestly) when gender roles were made salient, because the women's movement in the United States would cause American women to want to reject their traditional role. Consistent with hypotheses, American women evidenced more reduced modesty about their achievements when traditional gender roles were salient than when they were not salient. In contrast, gender role salience did not affect the reports of modesty made by American men, or Polish men and women.

These results are intriguing not only because American women were likely to display less modesty in their achievements but also because this process might predict that individuals would reject traditional gender roles in other ways as well. For example, some women might come to care about doing well in math in order to reject rather than conform to traditional gender roles. Moreover, although these data on role rejection might seem contradictory to the research on stereotype threat reviewed earlier, they might actually be parts of the same process. Accordingly, wanting very much to reject the stereotype about one's group might exacerbate performance problems.

A few studies have examined the intersection of race and gender within the context of stereotype threat. For example, Asian American women are in a particularly interesting situation when it comes to the domain of mathematics: They are stereotyped to be skilled at math because they are Asian, and unskilled at math because they are female. Pursuing this phenomenon, Shih, Pittinsky, and Ambady (1999) found that the aspect of identity that was activated (either Asian or female) predicted whether Asian American women evidenced performance decrements or enhancements under stereotype threat conditions. When their ethnic identity was primed, they evidenced performance enhancements. In contrast, they showed performance decrements when their gender was salient.

Similarly, because women are stereotyped to be less competent in math than men, and Latinos are stereotyped to be less competent at math than whites, Latina women are double-stereotyped to be unskilled at math. One study has examined whether performance decrements due to stereotype threat are additive in this sense (Gonzales, Blanton, & Williams, 2002). In this study, white and Latino men and women were randomly assigned to perform a math task either under stereotype threat conditions or not. Whereas white men evidenced performance enhancement under stereotype threat conditions, white women and Latino men evidenced some performance decrements, and Latina women evidenced the greatest performance decrements. Importantly, all participants scored similarly when the task was not performed under stereotype threat conditions. These data suggest that the effects of both gender and ethnic stereotype threat can accumulate and have an additive effect on performance.

SUMMARY AND CONCLUSIONS

Rapid advances over the past 30 years in women's educational and occupational achievements have been paralleled by advances in theory and research on gender, competence beliefs, and motivation. Eccles's expectancy–value theory and Bussey and Bandura's (1999) social cognitive theory provide similar—although not identical—accounts of how gender differences in competence beliefs might be created. Both theories allow for the conceptualization of self-efficacy as domain-specific rather than general. Both highlight the importance of input from significant socializers, such as parents, teachers, and peers, and from the culture more broadly (in the form of gender stereotypes and gender segregation of adult occupations) in shaping competence beliefs.

We view competence beliefs as the result of developmental processes. In both mathematics and language arts, patterns of gender differences in self-efficacy shift from early elementary school through high school. Maccoby (1998) highlighted the importance of gender segregation in childhood in creating gender differences in behavior and competence beliefs. Stereotype threat may affect

competence beliefs both acutely, in a particular situation, and chronically, as many experiences of stereotype threat accumulate for the developing child. These effects may be particularly relevant to issues of girls and mathematics achievement.

In the realm of achievement motivation, research and theory have shifted rapidly from the 1950s, when girls and women were believed to be low in achievement motivation and were excluded from much research, to the 1980s, when gender similarities seemed to be the rule for achievement motivation. The construct of motive to avoid success emerged in 1969 as a complement to the classic research on achievement motivation, but researchers uncovered many problems with the construct, and it has largely faded from contemporary research. Achievement goal theory is now the dominant approach; research based on this model often fails to detect gender differences in achievement goals. When gender differences are detected, they tend to fall along stereotypical lines, for example, with women adopting higher mastery achievement goals than men in areas such as psychology and language arts.

We have noted the importance of considering the intersection of gender and ethnicity when studying competence, achievement motivation, and stereotype threat. Gender and ethnicity may in some cases create a double-dose of stereotype threat that attacks competence beliefs, as in the case of Latinas and mathematics. In other cases, gender and ethnic effects may act in opposite directions, as in the case of Asian American women and mathematics. Only by studying gender and ethnicity simultaneously will we be able to understand the complexity of these influences.

For the most part, gender differences in self-efficacy and in achievement goals are small and domain-specific. Gender similarities may prove to be the rule. Our belief is that, rather than studying main effects of gender, researchers should consider gender interactions. For example, are performance goals more beneficial for men than for women? Do some categories of women and other categories of men respond to achievement challenges with enhanced competence beliefs? These more complex approaches will be necessary for research to advance.

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CHAPTER 22

Race and Ethnicity in the Study of Motivation and Competence

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About 10 years ago, one of us wrote a review on motivational processes in African Americans (Graham, 1994). That article summarized what was known at the time about five motivational constructs that had been studied in African American participants. Because those constructs are pertinent to the theme of this volume on motivation and competence, one strategy for organizing our chapter on race and ethnicity might be to take the Graham review as a starting point. For example, we could update what has been documented since 1994 on attributions, expectancies, and self-perceived competence in African Americans and other ethnic groups. We could expand our analysis by synthesizing current research on other contemporary motivation constructs represented in this *Handbook*—such as achievement goals, values, and efficacy beliefs—that were not well studied in ethnic minority groups at the time of the Graham review.

We have chosen not to take this approach to writing our chapter for two reasons. The first reason is a fairly practical one. There simply is not enough of a contemporary empirical literature with ethnic populations on any of the motivation constructs that now dominate the field. It is not that researchers have failed to consider the thoughts and feelings that energize or impede achievement strivings among ethnic groups in this country; but that work has not been situated within the literatures on motivation and competence.

Our second reason is more conceptual. The Graham review was guided by an intrapersonal view of motivation (individual needs, self-directed thoughts and feelings), with little attention to the larger context in which achievement strivings unfold. The review started with person-oriented theories of motivation about, for example, causal attributions or personal control, and then examined whether or not hypotheses derived from those theories were supported in African Americans. We now recognize the limitations of that approach. The significance of race and ethnicity for understanding motivation and competence requires that we cast a broader net and begin with factors that are unique to the everyday lives of people of color. Some of those factors are historical and structural in nature. Many racial and ethnic minority groups in contemporary America are positioned at the bottom of a status hierarchy wherein barriers to opportunity often override personal strivings for achievement. In an influential conceptual analysis, Garcia-Coll and colleagues (1996) identified experiences with racism and discrimination as meaningful macro-system variables that compromise the outcomes of children of color. Following their lead, we therefore begin our chapter with a discussion of perceived discrimination and coping with racial and ethnic stereotypes as structural variables that influence achievement strivings and the quest for competence among persons of color.

Members of racial and ethnic groups have proven to be remarkably resilient in the face of structural barriers such as those to be considered in the first two parts of this chapter. One important psychological variable that may contribute to that resilience is racial or ethnic identity, defined as one's attitudes and feelings about membership in his or her group (see Phinney, 1996). In the third part of this chapter, we examine research on racial/ethnic identity, with a particular focus on how that literature sheds light on motivation and competence in minority group members. The psychological meaning of race and ethnicity in the United States has been reshaped by the driving forces of immigration, and in the fourth section of our chapter, we consider how achievement strivings might be influenced by immigrant history and generational status. The four main topics reviewed—reactions to discrimination, coping with stereotypes, racial and ethnic identity, and the immigration experience—encompass vast literatures that have been just as much the intellectual terrain of sociologists and anthropologists as of psychologists. Therefore, we cannot do them justice in the context of this chapter. Rather, our goal is to use our knowledge of the topics as a framework for discussing the unique challenges of racial and ethnic groups as they strive for mastery and competence.

We use the terms "race" and "ethnicity" throughout the chapter, so we want to be clear about how we define those terms. In theory, "race" is an ascribed category, with a race being a group of persons with shared genetic, biological, and physical features. Using that definition, we think of blacks, whites, and Asians as different races, and we refer to them as such in this chapter. However, we also realize that race is more socially constructed than biologically determined, in that the meaning of racial group membership changes across time and context, and that the variability within racial groups far exceeds that between groups (Yee, Fairchild, Weizmann, & Wyatt, 1993). "Ethnicity," on the other hand, has been defined as a category, either ascribed or voluntary, that reflects a group's common history, nationality or geography, language, and culture. For example, Black Haitian immigrants and African Americans are different in many significant ways despite sharing a common racial designation, and the construct of ethnicity allows us to capture many of those differences. Some advocate consolidating the two terms into a single identifier for the sake of clarity (Phinney, 1996). Others argue that such an approach obscures important differences between theoretically distinct constructs (Helms & Talleyrand, 1997). We take the position that the two constructs are distinct but not mutually exclusive, consistent with what sociologists refer to as the *new ethnicity* approach (Cornell & Hartmann, 1998). Thus we frequently use the two terms in tandem in this chapter. However, when describing distinct research literatures (e.g., racial identity development vs. ethnic identity development) we use the specific term most appropriate to that literature.

REACTIONS TO DISCRIMINATION

One of the major challenges faced by racial and ethnic minority groups in the United States is the experience of discrimination. By "discrimination," we mean negative or harmful behavior toward persons because of their membership in a particular group (see

Jones, 1997). We also focus on personal experiences or the *perception* of harmful treatment because of one's racial or ethnic group membership rather than actual (documented) group discrimination in the legal sense.

Despite the economic, political, and social gains of the second half of the last century among people of color, experiences with racial discrimination continue to be quite prevalent in contemporary America. Survey data reveal that at least two-thirds of African Americans report that they have been discriminated against in the last year (e.g., Broman, Mavaddat, & Hsu, 2000; Kessler, Mickelson, & Williams, 1999). Even children as young as age 10 have reported race-based mistreatment, especially in schools and public places (Simons et al., 2002), and middle-class samples are just as likely to be targets of racial discrimination as their economically disadvantaged counterparts (Cose, 1993; Feagin, 1991).

Perceived discrimination can occur in almost any arena. It can be blatant, intended, and obvious; or subtle, unintended, and not easy to detect. Some researchers have used the term "microaggressions" to capture a particularly subtle but pernicious kind of degradation that many people of color encounter on an almost daily basis (Pierce, 1995). Examples of microaggressions include being ignored or overlooked while waiting in line, being suspected of cheating because one received a good grade on a test, being followed or observed while in public places, or being mistaken for someone who serves others (Harrell, 2000; Solorzano, 2000). One of us (S. G.) is reminded of a particularly painful example of microagression that her husband (an African American) encountered during his first year of medical school. Beginning his first clinical rotation, the aspiring young physician entered the university hospital, dressed in a white medical coat, shirt and tie, and with a stethoscope around his neck. As he rushed down the corridor on the way to Grand Rounds, a patient raised her hand, caught his attention, and signaled him to come to her room, by calling, "Oh, waiter, I'm ready for my tray." On the face of it, one such experience may seem fairly benign. But cumulative microaggressions can surely take their toll on mental health.

Consequences of Discrimination for Motivation and Competence

Many of the negative consequences of discrimination have implications for motivation and competence. People who perceive themselves to be chronic targets of others' mistreatment often lose confidence in themselves and in their ability to be self-efficacious. Because coping with discrimination is recognized as a major stressor for ethnic minorities, it also has been linked to a number of physical health problems associated with stress, including hypertension, decreased immune functioning, and heart disease (Clark, Anderson, Clark, & Williams, 1999). And because discrimination often takes the form of social exclusion, it can threaten one of the most fundamental human motives—the need to belong (Baumeister & Leary, 1995). Many studies have documented that even mild forms of laboratory-induced social exclusion can lead to both distressed affect and depletion of the cognitive resources needed to function productively (e.g., Baumeister, Twenge, & Nuss, 2002; Eisenberger, Lieberman, & Williams, 2003).

Most of the research on the mental and physical health consequences of discrimination has been conducted with adults, but there is a growing literature on the correlates of perceived race-based maltreatment among adolescents. Among the most prevalent kinds of unfair treatment reported by ethnic minority youth is that which takes place in school settings. Receiving a lower grade than deserved or being the recipient of unusually harsh discipline are common experiences of mistreatment in school reported by youth of color (Fisher, Wallace, & Fenton, 2000). Such experiences have been linked to more depression among early adolescents of color (Simons et al., 2002), drug use (Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004), decreased perceptions of mastery (Phinney, Madden, & Santos, 1998) and increased negative attitudes about school (Brand, Felner, Shim, Seitsinger, & Dumas, 2003). Perceived discrimination can lead to mistrust of teachers and to the general belief that the school rules and policies are unfair. A number of studies now document that personal experiences with discrimination, in combination with racial mistrust, can contribute to academic disengagement and other problem behaviors at school (e.g., Taylor, Casten, Flickinger, Roberts, & Fulmore, 1994).

Attributions to Discrimination: Risk or Protective Factor?

If discrimination is so ubiquitous, then how do ethnic minority targets manage to cope with it? One explanation pertinent to motivation and perceived competence focuses on the attributions of stigmatized groups (including racial and ethnic minorities) for their negative outcomes. Imagine for example, an African American student who receives a low grade on a test despite the fact that she thought she had answered all of the questions correctly. Because the failure was unexpected, she is likely, implicitly or explicitly, to ask, "Why?" Although attributional reasoning is complex, involving multiple causes, a basic distinction has been made in attribution research between causes that are internal (e.g., "It is something about *me*—my ability or effort") versus external (e.g., "It is something about my teacher; he's prejudiced") (Weiner, 1985; Chapter 5, this volume). External attributions for failure protect personal esteem by shifting blame away from the self. In an influential theoretical review, Crocker and Major (1989) drew on attribution research to argue that attributions to prejudice were an important self-protective mechanism that members of stigmatized groups use to maintain their self-esteem in spite of disparaging treatment by others.

Empirical support for the adaptiveness of external attributions for discrimination has been found in experimental research (see Major, Quinton, & McCoy, 2002, for a review), correlational studies (e.g., Moghaddam, Taylor, Lambert, & Schmidt, 1995), and longitudinal analyses (LaVeist, Sellers, & Neighbors, 2001). For example, LaVeist et al. (2001) found that African American adults who attributed discrimination to external factors (what the authors labeled as *system blame*) were more likely to be alive 13 years later than were their counterparts who attributed the same outcome to their own characteristics (self-blame). Lower mortality among the external attribution group was upheld even after controlling for the known correlates of survival, such as age, health status, and income.

The idea that external attributions can be self-protective for stigmatized groups provides a compelling theoretical account for why low-status groups have positive self-views *in spite of* their disadvantaged position. In recent years, however, empirical support for the esteem-protecting function of attributions to prejudice has been questioned (see Major et al., 2002). It has been argued, for example, that stigmatized groups only make external attributions when evaluator prejudice is very salient (Ruggiero & Taylor, 1995). In causally ambiguous contexts, targets are more likely to blame themselves in order to maintain personal control. There also appear to be social costs to making attributions to prejudice that may result in the dampening rather than maintenance of high self-esteem. Kaiser and Miller (2001) found that an African American target person who attributed a negative job evaluation to racial discrimination was perceived as irritating and troublesome, even when it was clear that the evaluator had reacted in a biased manner. Ethnic minorities may also be less likely to endorse attributions to prejudice when those causes need to be stated in the presence of a high-status evaluator (Stangor, Swim, Van Allen, & Sechrist, 2002). These studies suggest that people may be motivated to minimize attributions to prejudice to avoid devaluation, exclusion, or retaliation by others.

Some of the inconsistent findings in the attributional literature on discrimination may be due to an overly simplistic conception of an attribution to prejudice. Because perceived discrimination implicates personal characteristics (one's race or ethnicity), as well as the characteristics of external agents, it may be perceived as both internal and external on the locus dimension of causality (for related discussions, see Major et al., 2002; Schmitt & Branscombe, 2002). Moreover, internal and external causes differ along two other causal dimensions identified in attribution theory (i.e., stability and controllability) that also have motivational consequences. We suspect that the key attributional dimension for predicting how individuals cope with discrimination may be stability rather than locus. Stable causes for an outcome, whether internal or external, lead to the expectation that the same outcome will occur again, and that expectation,

in turn, predicts cognitions, affect, and behavior associated with one's future prospects (Weiner, 1985). Cumulative experiences with discrimination and the perception that the causes of discrimination are stable will lead to depressed affect (e.g., feelings of hopelessness) and giving up in the face of challenge. Those stability–expectancy linkages, which mirror research findings on the negative consequences of discrimination reviewed earlier, bear little relation to self-esteem and the locus of attributions to discrimination.

Summary

Experiences with discrimination are a significant risk factor for undermining motivation and competence in children, adolescents, and adults of color. Causal attributions for discrimination appear to be an important mechanism for understanding the effects of unfair treatment on subsequent adjustment. However, the properties of that causal explanation and their relation to adjustment have not been fully explored. We believe that the stability of attributions for discrimination, rather than locus, may be especially meaningful for understanding the relations between coping with discrimination and competence motivation.

RACIAL STEREOTYPES

Stereotypes are culturally shared beliefs, both positive and negative, about the characteristics and behaviors of particular groups. For example, the notion that blondes have more fun or that adolescents are victims of "raging hormones" is part of our culturally endorsed beliefs about the attributes of those social groups. An important distinction has been made in the stereotype literature between one's own privately held beliefs about members of social groups (personal stereotypes) and the consensual or shared understanding of those groups (cultural stereotypes), for the latter are primarily of interest in this chapter.

Most of the racial stereotype literature in the United States has focused on African Americans, and there is much evidence that the cultural stereotypes of that group remain largely negative. Even though privately held beliefs have become more positive over the last 50 years (e.g., Schuman, Steeh, Bobo, & Krysan, 1997), studies of cultural stereotypes continue to show that respondents associate being black (and male) with low intelligence, hostility, aggressiveness, and violence (e.g., Devine & Elliot, 1995; Krueger, 1996). The much smaller stereotype literature on other ethnic groups in the United States also portrays the more marginalized groups in a negative light. For example, cultural stereotypes of Latinos represent them as illegal immigrants who prefer menial jobs, thus driving down wages, while driving up the costs of social services (e.g., Kao, 2000). Similar to African Americans, adolescent Latino males are perceived as unintelligent, antisocial, and with little personal ambition (Cowan, Martinez, & Mendiola, 1997; Neimann, Pollack, Rogers, & O'Connor, 1998). So pervasive are these linkages that they are sometimes endorsed even by members of the target ethnic groups. In our own research, for example, we found that African American and Latino adolescents were just as likely as their white classmates to associate being male and black or Latino with academic disengagement and socially deviant behavior (Graham, Taylor, & Hudley, 1998; Hudley & Graham, 2001).

Racial Stereotypes about Intelligence

African Americans and Stereotype Threat

Because the notion of race differences in intelligence has such a long history in the United States, it is not surprising that people continue to believe that African Americans are innately less intelligent than whites. Recall the enormous media attention to *The Bell Curve* but a decade ago (Herrnstein & Murray, 1994). For many, the book was derided as scientific racism; but for others, it was heralded as reviving a scientific truth.

Long before and after publication of *The Bell Curve*, social scientists have been writing about the negative consequences of stereotypes that associate being black with low intelligence. One particularly provocative program of research relevant to motivation and competence has between carried out by Claude Steele, Joshua Aronson, and their colleagues on a phenomenon that they label *stereotype threat* (Steele, 1997; Steele & Aronson, 1995). Because that phenomenon is the subject of an entire chapter in this *Handbook*, we only briefly describe it here.

"Stereotype threat" is the awareness that individuals have about negative stereotypes associated with their group. Although considered to be a general psychological state applicable to any negative group stereotype, the construct originated in the achievement domain, and it has been applied to African American students' awareness of the cultural stereotype associating their race with intellectual inferiority. That awareness can be quite debilitating, especially for those African American students who are invested in doing well in school. For example, in a series of studies with black and white students attending Stanford University, Steele and Aronson (1995) found that black students performed more poorly than whites on test items taken from the Graduate Record Examination (GRE) when they were told that the test was diagnostic of their abilities. When told that the test was a problem-solving activity unrelated to ability, there was no difference in the performance of the two racial groups. In ability-related contexts, therefore, what became threatening for African American students was the fear that they might confirm the stereotype or be treated and judged by others based on that stereotype. Steele and Aronson suggested that stereotype-threatened students often are dividing their attention between the task itself (e.g., taking a GRE) and ruminating about the meaning of their performance (e.g., "What does this say about *me* or about members of my racial group?").

Stereotype threat researchers have documented two motivational consequences of the anxiety associated with thinking about race and intelligence in highly evaluative achievement contexts (Steele, 1997). Some African American students may choose to work especially hard as a way of disconfirming the stereotype. Of course, high effort in the face of increasing academic challenge may be difficult to sustain and may even lead one to question his or her abilities. Stereotype threat can also have the opposite effect, causing students to minimize effort and downplay the importance of doing well in school. Steele coined the term academic "disidentification" to describe students who no longer view academic achievement as a domain that is either important to them or their self-definition. Disidentification has been operationalized as the absence of a relationship between academic performance and self-esteem, and it has been associated with declining achievement from middle school to high school, particularly among African American boys (Osborne, 1997). A similar process, labeled academic "disengagement," occurs when students begin to discount the feedback they receive about their performance or to devalue achievement altogether (e.g., Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Major & Schmader, 2001). Thus, while disidentification and disengagement may be self-protecting mechanisms for coping with negative racial stereotypes, in the long run, their detrimental effects on achievement strivings may outweigh any short-term self-enhancing effects.

Asian Americans and the Model Minority Stereotype

Unlike African Americans, the cultural stereotype about Asians is that they are hardworking and intellectually gifted high achievers who are especially competent in math and science (Kao, 1995). The term "model minority" was coined in the 1960s by social scientists and journalists to capture those characteristics and to account for the seemingly unprecedented successful entry of East Asian immigrants into mainstream American society (Sue & Okazaki, 1990). Many studies have now documented that Asians and non-Asians alike are aware of the culturally shared association between high academic achievement strivings and being an Asian American (e.g., Kao, 1995, 2000; Lee, 1994). Asked to describe the stereotypes about their group, over 80% of Asian American college students in one study listed terms such as "smart," "nerdy," and "overachiever" (Oyserman & Sakamoto, 1997).

While it may be more tolerable to know that one's ethnic group is viewed as smart and hardworking rather than as lazy and dumb, that stereotype also has its own unique set of challenges. Ethnographic, survey, and experimental research all point to psychological and emotional costs associated with living up to the model minority

stereotype. Ethnographic studies, for example, detail the anxiety that many Asian American students feel when forced to cope with the perception of their group as academic superstars (see Lee, 1994). Many report feeling frustrated and pressured to attain or maintain high academic achievement because of the expectations placed upon them. As one Asian American student poignantly disclosed:

> They [whites] will have stereotypes, like we're smart. . . . They are so wrong, not everyone is smart. They expect you to be this and sometimes you tend to be what they expect you to be and you just lose your identity. . . . When you get bad grades, people look at you really strangely because you are sort of distorting the way they see an Asian. It makes you feel really awkward if you don't fit the stereotype. (in Lee, 1994, p. 419)

Consequences of those pressures have also been confirmed in laboratory experimental studies. Cheryan and Bodenhausen (2000) had Asian American women college students complete a set of math problems under conditions that manipulated whether their ethnicity was salient at the time of testing. Women in whom ethnic group membership had been primed performed more poorly and reported greater difficulty concentrating than those in a neutral condition. The authors suggested that positive stereotypes about academic ability can lead to "choking" under pressure if there is concern about failure to live up to high expectations about one's group. It also has been documented that Asian students were punished more for poor performance on a math tests than non-Asians who achieved the same outcome (Ho, Driscoll, & Loosbrock, 1998), implying that their evaluators perceived them as not trying hard. From an attributional perspective, failure attributed by others to lack of effort, given high ability, is maximally punished (Weiner, 1995).

Teacher Expectancies (Stereotypes?) as Self-Fulfilling Prophecies

Thus far, we have argued that intelligence-related stereotypes about African American and Asian American students are prevalent, and that these stereotypes influence students' motivation and perceptions of competence. It is reasonable also to ask whether teachers hold stereotypes linking race to intelligence and, if so, whether such stereotypes have an impact on student motivation and competence. Rosenthal and Jacobson's (1968) classic study, *Pygmalion in the Classroom*, was the first to document how teachers' inaccurate expectancies about students' intelligence actually produced changes in students' IQ scores that were consistent with their expectancies. Teacher expectancies became self-fulfilling prophesies (Merton, 1957), because an initially false definition of a situation evoked behaviors that subsequently made the false belief true. Stereotypes are often conceptualized as inaccurate expectations about individuals based on group membership, and a number of experimental studies have now documented the behavior-confirming (i.e., self-fulfilling) potential of social stereotypes (for recent examples, see Bargh, Chen, & Burrows, 1996; Chen & Bargh, 1997).

There is not a lot of concrete evidence that teacher expectations function as self-fulfilling prophesies (see review in Jussim, Eccles, & Madon, 1996). When found, however, those effects are often stronger when the expectations are low rather than high, and when they are held for African American compared to white students (see Rubovits & Maehr, 1973, for an early example and Jussim et al., 1996, for a more contemporary example). In the Jussim et al. study of sixth-grade math teachers and their students, teacher perceptions of low math ability in the fall predicted actual (low) achievement in the spring, over and above that explained by students' measured abilities. That effect was especially powerful for African American students, suggesting that these children are particularly vulnerable to confirming the beliefs of teachers who have low expectations about their academic potential.

How are negative teacher expectations communicated to students in self-fulfilling ways? One possible mechanism is the use of instructional practices that indirectly communicate low ability messages. For example, one of us (Graham, 1991) has found that undifferentiated praise for success at easy tasks, unsolicited offers of help, and too much sympathy following failure can lead students to attribute their academic setbacks to low ability (see also Mueller & Dweck, 1998 on the praise–low ability relation). Furthermore, altering pedagogical practices to be more effort- rather than ability-oriented can have immediate impact on students' motivation, even among those who are highly identified with the achievement domain. Cohen, Steele, and Ross (1999) found that African American college students displayed more subsequent task motivation when poor performance feedback was accompanied by criticism and communicated high expectations than when the same criticism was accompanied by general praise as a buffer. Such feedback, labeled "wise" by Cohen et al. (1999), can shift the attribution for failure away from low ability and toward those factors, such as lack of effort, that are under volitional control.

Racial Stereotypes about Antisocial Behavior

Arguably, *the* most pernicious racial stereotype affecting motivation and competence is the culturally shared belief that African Americans are violent, dangerous, aggressive, and antisocial. As we stated earlier, there is a great deal of evidence that this stereotype remains a part of the contemporary American psyche (e.g., Devine & Elliott, 1995).

Racial stereotypes about antisocial behavior have been linked to the disproportionately harsh treatment of African American youth in both the juvenile justice system and in the area of school discipline. For example, African American youth ages 10–17 are three to five times more likely than whites to be confined in the juvenile system (Poe-Yamagata & Jones, 2000). Some of that racial disparity is due to bias, inasmuch as African American offenders often receive harsher sentences than do whites, even after controlling for legal variables such as crime severity and prior offense history (Bridges & Steen, 1998; Leonard, Pope, & Feyerherm, 1995). In the school domain, Zero Tolerance and related "get tough" policies have produced racial disparities in the use of disciplinary practices. In a recent study of school suspension across 10 large school districts in the United States, the suspension rate for African American students was from two to five times greater than their representation in the school population (Applied Research Center, 2000). As in the justice system, racial disparities are evident, because many studies document that black students are punished more harshly than white students for the same school offense, and they appear to be disciplined for less severe and more subjectively perceived transgressions, such as behaving in a threatening or disrespectful manner (Skiba, 2001).

While many social scientists have argued that disproportionately harsh treatment of African American students and young offenders can be attributed to the presence of racial stereotypes, at present, there is little empirical research that directly tests those linkages. We believe that the stereotypes do exist, and that they influence decision making about African American youth largely at an unconscious level (e.g., Graham & Lowery, 2004). That belief is consistent with a growing literature in social psychology documenting that stereotypes can be activated and used outside of conscious awareness (e.g., Greenwald & Banaji, 1995). Unconscious stereotypes are *unintentional*, because they are not planned responses; *involuntary*, since they occur automatically in the presence of an environmental cue; and *effortless*, in that they do not deplete an individual's limited information-processing resources (Bargh & Chartrand, 1999). By automatically and effortlessly categorizing people according to the stereotypes that they hold about them, perceivers can manage information overload and make social decisions more efficiently. Particularly among perceivers at the front end of a system, such as police officers in the justice system or teachers dealing with classroom disorder, decisions often must be made quickly, under conditions of cognitive and emotional overload (e.g., perceived threat), and where much ambiguity exists. These are the very conditions that are known to activate unconscious beliefs (Fiske, 1998).

Situating the study of racial stereotypes in basic social cognitive processes provides new opportunities to think about intervention at the individual level. Even if stereotypes are largely automatic, they are still amenable to change (Blair, 2002). For example, perceivers can unlearn negative stereotypes with enough practice ("Just say no"), and they can be taught to focus on counter-stereotypical associations with mental imag-

ery (Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000). Thus, decision makers in our courts, schools, and other social arenas can be educated to be more aware of the nature of their biases and how to change them.

Summary

Stereotypes that associate being African American with low intelligence, or those that associate being Asian American with high intelligence, can undermine the motivation and perceived competence of the targets of those stereotypes. The stereotype threat literature suggests that some African American students fear that their performance will confirm a negative stereotype; the model minority literature proposes that some Asian American students fear that their performance will disconfirm a positive stereotype. We suspect that coping with ability-related stereotypes in the academic domain, either negative or positive, can lead to performance–avoidance goals (i.e., being oriented toward a negative possibility), which have known negative consequences for motivation and performance (see Elliot, 1999; Chapter 4, this volume). Thus, students of color may often define their achievement goals according to the stereotypical images of their group. Racial stereotypes about antisocial behavior have been linked to punitive outcomes that cut off opportunities to be competent. Linking stereotypes to faulty information processing provides new directions for cognitive intervention at the individual level that can complement activism to combat racism at the institutional level.

RACIAL AND ETHNIC IDENTITY

Research on stereotypes and discrimination provides a natural bridge to racial identity because social psychologists have become very interested in the ways in which ethnic identity might moderate the relationship between perceived discrimination and adjustment. For example, it has been suggested that a strong racial identity can buffer the negative effect of discrimination on mental health (Sellers & Shelton, 2003). That finding is consistent with a growing literature on racial and ethnic identity, and the role that they play in healthy adjustment. In this section, we turn to that literature in the context of academic achievement.

We define racial (ethnic) identity as a person's sense of belonging to his or her group and the meaning attached to that group membership (e.g., Phinney, 1990). Sense of belonging has many dimensions, including self-labeling (e.g., Do I describe myself as *Mexican American*?); level of knowledge about one's group, including its history and culture; and participation in activities and practices of the group. Psychological meaning includes the importance of ethnic membership, one's feelings of pride associated with membership in the group, and one's attitudes about his or her group, particularly the way it is perceived in the eyes of others (Sellers, Smith, Shelton, Rowley, & Chavous, 1998).

In a multiethnic society, members of minority groups are constantly called upon to negotiate their identity. They must weigh the relative value of maintaining a distinct group identity versus taking on some, if not all, of the perceived characteristics of the dominant group. Ethnic identity negotiation can be challenging. Some of the challenge relates to forging an ethnic identity when one's group historically has been devalued by the larger society, as in the case of African Americans. Other difficulties concern reconciling bicultural identities with both country of origin and country of residence, as is true for many Latino and Asian youth with recent immigrant histories. For children and adolescents, the school context is one of the primary environments in which identity negotiation is enacted, and the consequences of that negotiation may significantly influence a child's motivation for and commitment to school learning. While a strong identification with one's ethnic group may facilitate achievement motivation, an alternative perspective suggests that a strong ethnic identity may pose a significant barrier to achievement strivings.

Ethnic Identity as Educational Risk Factor

Conceptualizing ethnic identity as an educational risk factor is perhaps most clearly represented by John Ogbu's cultural ecological theory (Ogbu, 1978, 2003). That theory examines achievement striving in the context of a minority group's historical, social, cultural, and linguistic relationship to the dominant culture. Two interlocking influences are seen as central to the achievement strivings of ethnic minority youth. One is what Ogbu refers to as "the system," or the manner in which the larger society and its institutions have incorporated and treated the minority group. The other is "the community," or the collective adaptation of the group to the dominant society and to its minority status.

Cultural ecological theory argues that each ethnic or cultural group in a pluralistic society tends to perceive its identity according to how it has historically been incorporated into the social system. Involuntary minorities are those that have been incorporated into the dominant society without their consent, through slavery, conquest, or colonization. Members of these groups understand the racism and discrimination that they experience as an expression of their forced subordinate status and see the dominant cultural forms taught in "the system's" public schools as tools used against them for the purpose of oppression. In response to repeated experiences of discrimination and subordination by the dominant group, involuntary minority groups may develop a system of secondary cultural differences that are formed by a process known as "cultural inversion."

Oppositional Identity

Through the process of cultural inversion, certain behaviors and symbols are assigned exclusively to the dominant group, and the minority group adopts behaviors and symbols in direct contradiction to those of the dominant group. This process of cultural inversion creates among members of involuntary minority groups what cultural ecological theory refers to as an "oppositional identity." In an effort to maintain cultural boundaries, anything labeled as a characteristic of the dominant group (e.g., academic motivation, school engagement, and success) is, by definition, not appropriate for members of their own ethnic group. Rather, the involuntary minority group must be defined by characteristics (e.g., school disengagement) that are the direct opposite (i.e., an inversion) of the dominant group. In school, student members of involuntary minority groups may reject achievement striving and displays of effort to preserve their ethnic or cultural identity.

Consistent with oppositional identity, several ethnographies have concluded that African American adolescents believe that working hard for school success may be viewed by their black peers as "acting white," or supplanting one's own ethnic identity with that of the dominant culture (Fordham, 1996; Fordham & Ogbu, 1986; Tatum, 1997). It has been proposed that highly academically motivated African American students must adopt a "raceless" identity (Fordham, 1996) and often endure the rejection and outright ridicule of peers who espouse an oppositional identity. Furthermore, even among middle-class African American families and students, suspicion of racial inequity often creates an oppositional frame of interaction between schools and families and an oppositional identity among students, who reject achievement striving in favor of aspirations for sports or entertainment careers (Ogbu, 2003). A few ethnographic studies of oppositional identity have also been carried out with other marginalized (involuntary) ethnic groups and report similar findings. For example, a study of Mexican-descent high school students revealed that youth with a particular type of ethnic identification (e.g., *cholo*) endorsed beliefs about barriers to opportunity, experienced identity conflict, and displayed the same kinds of oppositional behaviors that Fordham and Ogbu (1986) have attributed to African Americans (Matute-Bianchi, 1991). In addition, Lee (1994) reported that some Asian-identified students, labeled as *New Wavers*, showed similar disdain for academic achievement, not only as a reaction to the model minority stereotype, but also because they associated being popular with academic disengagement.

The discourse surrounding oppositional identity during adolescence has become very lively among public intellectuals, as well as researchers, at least partly because it provides a motivational explanation for the achievement gap between black and white students. One would be hard pressed to find an article on academic motivation in African American adolescents in the last 10 years

that does not explicitly or implicitly make reference to oppositional identity. That construct also has been linked to other motivational phenomena discussed earlier in this chapter, such as stereotype threat and disidentification, as a way to fully capture the academic challenges that African American students face (Steele, 1992).

Aside from the ethnographic studies, however, there is not much empirical support for the phenomenon of oppositional identity. For example, two studies (Ainsworth-Darnell & Downey, 1998; Cook & Ludwig, 1997) tested hypotheses about oppositional identity using data from the National Education Longitudinal Study (NELS), a nationally representative panel study of 25,000 ethnically diverse students, their parents, and their teachers, who were assessed when students were in 8th, 10th, and 12th grade. Examining 10th-grade data, but using different analytic strategies, neither Ainsworth-Darnell and Downey (1998) nor Cook and Ludwig (1997) found clear evidence for attitudes resembling oppositional identity in African American high school students. Black students reported *more* proschool attitudes than their white counterparts, had equally high expectations for their future, and felt that high-achieving black peers were indeed among the most popular in school. To be sure, African American students in NELS analyses had lower school achievement than whites on virtually every indicator. But to the degree that antiachievement peer norms were present, they were the same for the two racial groups.

Some scholars have countered that large-scale surveys such as NELS are not sensitive enough to capture the more nuanced cultural and school contexts that do indeed promote oppositional identity among involuntary minorities (e.g., Farkas, Lleras, & Maczuga, 2002). Yet other qualitative studies do not find that African American adolescents believe either that doing well in school threatens their racial identity or that high achievers are rejected by the peer group (Bergin & Cooks, 2002; Datnow & Cooper, 1997). Rather than being oppositional, a strong racial identity was promotive of achievement strivings. In the next section, we turn to other research that argues for positive associations between ethnic identity and motivation.

Ethnic Identity as a Protective Factor

Although lacking a provocative conceptual framework like that of Fordham and Ogbu, a growing empirical literature has documented the motivational benefits of strongly identifying with one's ethnic group. Rather than cultural anthropology, this literature is grounded in more psychological approaches that measure ethnic identity with established scales and then relate strength of measured identity to a number of outcomes. For African Americans in particular, supportive results have been found with samples from childhood to young adulthood. Among elementary school students, for example, self and teacher ratings of school interest and school adjustment relate significantly to measures of racial identity (Thomas, Townsend, & Belgrave, 2003). Furthermore, a racial identity that includes the attitude that academic achievement is a part of being black has been shown to predict subsequent motivation and achievement (Oyserman, Harrison, & Bybee, 2001) as well as self-perceptions of ability and career aspirations in African American middle school students (Smith, Walker, Fields, Brookins, & Seay, 1999). Similarly, recent data indicate that African American middle school students with a positive racial identity are more likely to have high academic self-concepts and to be academically more successful than their counterparts who endorse a Eurocentric identity (Spencer, Noll, Stoltzfus, & Harpalani, 2001). Spencer et al. have been particularly vocal in criticizing the "acting white" phenomenon.

Consistent with findings from younger students, positive attitudes toward racial identity are also predictive of high academic self-concept and achievement among African American high school students (O'Connor, 1999; Witherspoon, Speight, & Thomas, 1997). In one of few studies to examine racial identity in a longitudinal design, Chavous et al. (2003) documented that 12th graders who perceived their racial identity to be central to their self-concept attended school more regularly, achieved higher grades, and were more likely to graduate from high school and go on to college. As might be expected from the foregoing results, positive racial identification is also predictive of achievement motivation and academic success in African American college undergraduates (Cokley, 2001; Sellers, Chavous, & Cooke, 1998).

The effects of a strong ethnic identity seem to generalize to other racial and ethnic groups as well. Research on Native American college students has consistently linked a positive psychosocial connection to Native culture with academic motivation, persistence, and achievement (Montgomery, Miville, Winterowd, Jeffries, & Baysden, 2000). This literature suggests that the most motivated students construct a unique academic identity that explicitly incorporates Indian ways of knowing, including the value of guides, the wisdom of elders, and the reciprocally supportive relationship between the Native community and the student. Among Latino students across grade levels, strong ethnic identity has been associated with school engagement, intrinsic motivation, and a belief in the value of schooling, although these findings appear to be more robust for Latino females than for males (e.g., Okagaki, Frensch, & Dodson, 1996; Lasley-Barajas & Pierce, 2001)

What are the origins of strong ethnic identity in youth of color? One important factor appears to be the way parents socialize their children about race and ethnicity. Two types of attitude about race that parents transmit to their offspring have been identified: (1) the communicated messages that instill racial and ethnic pride, including learning about one's history, heritage and culture; and (2) preparation for experiences with racial bias and discrimination (Bowman & Howard, 1985; Hughes & Chen, 1997). An underlying theme in this socialization research is that ethnic minority parents begin to teach their children about their ethnic history, heritage, and culture as early as the preschool years, and that preparation for coping with discrimination increases as children get older, especially in African American families. These communicated messages are related not only stronger to ethnic identity but also to higher academic achievement, more perceived mastery, and better problem-solving skills.

Summary

There are two competing hypotheses in the literature about the relationship between ethnic identity and achievement strivings. Using qualitative methods, cultural ecological theorists argue that positive achievement attitudes and behaviors can threaten the identity of involuntary minority groups. On the other hand, contemporary programs of research using survey methods and self-report measures of identity find that strong ethnic identity is related to successful academic outcomes. It also is evident that parental socialization about race contributes to the positive relation between identity and achievement. What is missing from this literature is an understanding of process, or the mechanisms by which identity promotes motivation and competence. For example, the process may be primarily affective (e.g., ethnic pride enhances the subjective feeling of being competent), cognitive (e.g., strong identity enables one to filter out negative, ability-related messages of others), or some combination of feeling and thinking sequences. These are issues for future research.

THE IMMIGRANT EXPERIENCE

Census 2000 completely redefined the racial and ethnic landscape in the United States. Although whites are still the majority group in the nation as a whole, Asians and Latinos are now the fastest growing ethnic groups. In some states, such as California, that growth has been so dramatic that it is no longer meaningful to talk about majority and minority groups, inasmuch as no single ethnic group holds the numerical balance of power. The increased presence of immigrant children of color in the schools has led to an interest in the psychosocial impact of acculturation on academic motivation and adjustment, and we concentrate our review on that literature. As schools become more multicultural, immigrant students cope simultaneously with increased cross-ethnic contact and pressures to adjust to the dominant culture. These acculturation pressures are presumed to impact a number of areas, including mental health, coping with discrimination, ethnic identity, and orientation toward school.

Segmented Assimilation

Traditional theories about immigration were guided by the experiences of European im-

migrants in the early 20th century (e.g., Gordon, 1964). Those "melting pot" theories proposed that social and economic mobility should increase across successive generations of residence as the descendants of early immigrants are steadily assimilated into the American fabric. Thus, second- and third-generation residents should achieve better outcomes than their first-generation forbears to the extent that they adopt the language, culture, and values of the host society and become more similar to (indistinguishable from) mainstream Americans.

The outcomes for immigrants since the 1960s, who are largely of African, Latino, and Asian rather than European descent, have not supported the assimilationists' theory of upward mobility across successive generations. A growing literature on the psychosocial adjustment of youth as a function of immigrant history documents poorer adjustment across successive generations of residence in the United States (see review in Zhou, 1997). For example, in some studies, first- and second-generation adolescents of Latino, Asian, or black (Caribbean) descent did better in school and maintained more positive attitudes about achievement than did same-ethnicity youth whose families had resided in this country for three or more generations (Fuligni, 1997; Kao & Tienda, 1995; Matute-Bianchi, 1991; Rong & Brown, 2001). Lower self-esteem also has been associated with longer residence among adolescent children of immigrants (Rumbaut, 1994). Such findings have led immigration researchers to propose that there might be multiple pathways to immigrant success, not all of which involved rapid assimilation (Portes & Zhou, 1993). The theory of segmented assimilation suggests that adopting the characteristics of the host culture, while relinquishing one's culture of origin, can lead either to upward mobility and absorption into the middle class, or to downward mobility and absorption into the urban underclass. Yet a third pathway involves upward mobility, while holding on to the values embedded in one's culture and maintaining close ties with one's immigrant community. In the following sections, we consider research on family socialization and on ethnic identity across generations to illustrate these divergent pathways.

Family Socialization and Motivation

Communicated parental values about hard work and the importance of a good education appear to be among the most important factors accounting for higher achievement among immigrants and children of immigrants (second generation) compared to their counterparts of third generation and beyond. For example, Fuligni (1997) found that the higher academic performance of Asian and Latino first- and second-generation adolescents could be traced to higher parental expectations that they do well in school and higher parental aspirations for their educational attainment. Much of the parental socialization around achievement involves encouragement of children to overcome setbacks, because their educational opportunities are perceived to be much greater in the United States than those available in their home countries.

Parental socialization about obligation to the family has been similarly linked to higher achievement strivings among relative newcomers to this country. "Family obligation" refers to how much family members feel a sense of duty to help one another and to take into account family needs when making personal decisions (Fuligni, Tseng, & Lam, 1999). It has been shown that Latino and Asian immigrant youth are more likely than their American-born counterparts to report a belief in family duty, although both groups display more family loyalty than European American peers (Fuligni et al., 1999; Suarez-Orozco & Suarez-Orozco, 1995). Family obligation also is correlated with achievement values, inasmuch as many of the youth feel that doing well in school is something that they owe their parents.

Identity Development

Picture two second-generation adolescents, one whose parents were born in Mexico, and the other whose parents were born in Haiti. If we were to ask these youth the perennial "Who am I?"question by selecting an ethnic label, what would each choose? Will the youth of Mexican origin self-identify as *Mexican*, *Mexican American*, *or Latino*? Will the youth of Haitian origin self-identify as *Haitian*, *African American*, or *black*? More generally, are immigrant youth more likely to adopt pan-ethnic labels, such as *Mexican American* or *African American*, that link them to American-born peers with similar (albeit distant) ethnic heritages, or are they more likely to self-identity in ways that tie them more closely to the immigrant experience and their country of origin? While complex and not easy to answer, this question is very relevant to our chapter. How children with recent immigration histories negotiate their ethnic identity has important implications for motivation and competence.

A number of studies that have addressed this question with diverse immigrant groups reached similar conclusions. For example, in a study of adolescent children of Vietnamese immigrants in New Orleans, Bankston and Zhou (1997) found that adolescents who remained highly integrated within their ethnic communities (e.g., had Vietnamese friends, preferred Vietnamese food and music, maintained close family ties) were doing better in school and were better socially adjusted than those who had come to identify with local American youth. Waters (1994) studied second-generation Haitian and West Indian adolescents in New York City. The middle-class youth in that study, and those who were doing well in school, preferred to be identified with their country of origin. Such youth consciously rejected being viewed as African American because of the negative stereotypes associated with that group. In contrast, lower socioeconomic scale and lower achieving blacks were more likely to identify with African Americans, to be particularly sensitive to discrimination, and to adopt many of the negative attitudes about school that have been associated with oppositional identity. In research on Mexican-descent high school students in central California, Matute-Bianchi (1991) distinguished between second-generation students, who identified with traditional Mexican culture, values, and language (Mexican-oriented), and their native-born counterparts, who were least likely to self-identify as such (*Chicanos* and *Cholos*). Mexican-oriented students were more liked and respected by their teachers, reported being more engaged in school, and experienced higher academic achievement than *Chicanos* and *Cholos*. These latter groups, in fact, were among the most troubled in the school, suggesting that their identities had been transformed in way that alienated them from both their school context and traditional Mexican culture. Thus, a common theme in all of these studies is that adolescents with recent immigration histories fare better when they strongly identify with their country of origin rather than distancing themselves from it.

The notion of segmented assimilation, its relationship to identity negotiation, and multiple pathways to upward or downward mobility is complementary to Ogbu's cultural ecological theory introduced earlier. While some students may adopt attitudes and display behaviors characteristic of an involuntary minority, those children who experience a more modified acculturation process and retain their traditional ethnic identity are consistent with Ogbu's definition of "voluntary minorities." Members of this group have chosen minority status in the dominant American culture, with the expectation of a better life, rather than having that status forced upon them, as is the case with involuntary minorities. As such, voluntary minorities believe in the value of schooling as a means to get ahead, they retain their original cultural values and language rather than developing a unique secondary culture in opposition to the dominant culture, and they tend to experience school success at much higher rates than involuntary minorities. Thus, Ogbu's typology of voluntary–involuntary minorities and the theory of segmented assimilation lead to similar conclusions about the impact of acculturation on motivation and competence. The key to success appears to be the development of a strong bicultural competence (LaFromboise, Coleman, & Gerton, 1993), or the ability to function effectively in the dominant culture, while retaining a primary ethnic identity.

GENERAL SUMMARY

The study of race and ethnicity in motivation and competence needs to begin with the unique experiences of people of color in this society. We have focused on a set of interrelated factors that draw on the historical circumstances and cultural forces that have shaped those experiences and that have mo-

tivational significance. Coping with discrimination and cultural stereotypes is meaningful because it sheds light on what Weiner (Chapter 5, this volume) has labeled the "social psychology of competence." The way other people perceive the abilities of ethnic minority members, and how those perceptions are communicated and enacted, partly determine what ethnic group members think and feel about themselves. Perceptions of others also affect the goals toward which people of color strive (e.g., to disconfirm negative stereotypes about competence), their causal explanations for discrimination (e.g., Is it *me* or is it *them*?), and the perceived costs and benefits of sustained achievement strivings.

Discrimination and racial stereotypes are structural variables that impact motivation and perceived competence of people of color, an impact that is filtered by how individuals think about their membership in a particular racial or ethnic group. We therefore have focused on ethnic identity as the lens through which people of color interpret the reactions of dominant group members. Our interpretation of the literature is that ethnic identity is a protective factor, particularly during adolescence. When adolescents of color are strongly identified with their ethnic group, they are more motivated to achieve and have a greater repertoire of skills to ward off threats to their competence. A task for the future is to better understand process, or the psychological mechanisms by which ethnic identity serves this buffering role.

Finally, we have incorporated the immigration experience as a way of acknowledging the changing racial and ethnic landscape in this country. There was a time when the discourse about race and psychological variables was limited to African Americans and the ways in which they were similar to or different from whites. The large influx of ethnic immigrants from Latin America, the Caribbean, and Southeast Asia has fundamentally altered that discourse. The serious researcher who wants to study how ethnicity shapes achievement strivings and the pursuit of competence will have to address immigrant and generational status. For some ethnic groups, motivation and competence can be impaired over time and across generations.

TOWARD THE FUTURE

We conclude with a set of guidelines for research on motivation and competence in racial and ethnic groups that evolves from our focus in this chapter. None of the guidelines is discussed in detail, and they surely reflect our biases. We offer them as food for thought, and in some cases, as cautionary notes.

The Intersection of Social Class and Gender

Some scholars, critical of how race has been studied in psychological research, have argued that most of what the field attributes to racial or ethnic differences is really a function of social and economic disparities, and that the latter is where our emphasis should be placed. We agree in part with this position, because we are well aware that ethnic minority groups are overrepresented among those who endure social and economic marginality. However, many of the phenomena examined in this chapter transcend social class differences. Coping with discrimination and stereotypes and identity negotiation are challenges faced by ethnic group members across all socioeconomic strata (e.g., Feagin, 1991). Those challenges might inform debate on the achievement gap (e.g., Jencks & Phillips, 1998) and on physical health disparities (e.g., Adler & Snibbe, 2003), two contexts wherein differences between African Americans and whites remain even when social class is taken into account. After reviewing the literature on relations between socioeconomic status and physical health, Adler and Snibbe (2003) concluded that "although a substantial portion of the racial–ethnic differences in health is due to social disadvantages associated with low SES, unique effects specific to race–ethnicity also exist, reflecting experiences of discrimination, residential segregation, negative stereotypes, and other circumstances" (p. 122). We agree with this conclusion. There is something unique about being an ethnic minority, over and above poverty or affluence, and that uniqueness should not be ignored in the study of motivation and competence.

There also are particular circumstances

associated with being *male* and a member of an ethnic minority that have not adequately been recognized in motivation research. In most gender research on motivation, a dominant theme is the heightened vulnerability of girls to motivational deficits. Some argue that gender role socialization and cultural stereotypes about women and achievement lead many girls to question their academic competence more, particularly in math; to display more maladaptive reactions to failure, including low-ability attributions; to perceive more barriers to success; and to experience more conflict between individual achievement strivings and social conformity (see reviews in Eccles, Wigfield, & Schiefele, 1998; Ruble & Martin, 1998). Even research on stereotype threat in young adults underscores that developmental gender literature because it draws many parallels between the academic plight of African Americans and that of women in math and science (Steele, 1997).

We believe that gender analyses in motivation research may need to be reframed. In research on motivation and achievement that examines both ethnic and gender differences, it is evident that ethnic minority males (i.e., African American and Latino) are faring more poorly than females (e.g., Graham et al., 1998; Matute-Bianchi, 1991; Osborne, 1997; Taylor et al., 1994). The ethnicity-by-gender differences increase across the school years and are particularly apparent when the measures are so-called "markers" of adolescent success (i.e., high school graduation) and young adult mobility (i.e., enrollment in and completion of college; see review in Sidanius & Pratto, 1999). The outcomes of racial stereotypes about antisocial behavior, such as school suspension and confinement in the justice system, also fall disproportionately on African American males. We believe that ethnic minority males, more so than other groups, must cope with the dual stressors of academic challenge and negative stereotypes about their group. Such stressors create particular needs that can be addressed with appropriate pedagogical intervention (Hudley, 1995, 1997). Therefore, research on motivation and competence must be particularly sensitive to gender-by-ethnicity interactions in order to uncover other kinds of challenges that are unique to ethnic minority boys.

Beyond Self-Esteem

If we were to base our appraisal of racial differences in motivation and competence on what research participants *say*, we would find a perplexing, some might say, counterintuitive pattern of findings. African American children and adolescents' perceptions of their competence, whether measured by general or academic-specific measures of self-esteem, are equal to or more positive than those of their white counterparts, even when achievement data indicate that they are doing more poorly in school. This robust finding is documented in several reviews (Crocker & Major, 1989; Graham, 1994; Gray-Little & Hafdahl, 2000). Important theoretical contributions have emerged from scholars' attempts to understand how African Americans can continue to report feeling good about themselves when achievement outcomes indicate otherwise. In the literature on external attributions for discrimination, reviewed in this chapter, a good example is Crocker and Major's (1989) influential analysis of the self-protective (esteem-enhancing) strategies employed by stigmatized groups. As important as that work has been (it certainly dispelled the myth of black self-hatred), we believe that the study of motivation and competence in racial and ethnic groups should move beyond personal esteem and related self-appraisal constructs. Among African Americans at least, self-perceived competence is not a reliable predictor of actual competence. We suspect that there is more to be learned by focusing on constructs that tap perceived barriers to opportunity or the payoff of persistence in spite of those barriers. These are expectancy- rather than esteem-related constructs.

Importance of Multiple Methods

Motivation research on racial and ethnic groups needs to employ multiple methods. At least one phenomenon that we have considered in this chapter—oppositional identity—so captured the interest of motivation researchers that it had an impact on our field even in the absence of a strong empirical base. Not until the ethnographic studies were complemented with survey methods did the literature begin to question whether, how, and when African American (involun-

tary minority) youth actually displayed the attitudes and behavior associated with oppositional identity. Other phenomena examined in this chapter also have been linked to a single empirical approach. For example, stereotype threat and teacher expectancies as self-fulfilling prophesies have mainly been documented in laboratory experimental studies; vulnerability to the model minority stereotype has been best illustrated in the qualitative approach of ethnography; and contemporary ethnic identity research mainly draws on correlational studies that measure individual differences in the strength of one's allegiance to his or her group. We believe that experimental, ethnographic, and correlational approaches are all necessary to capture fully the dynamics of motivation and striving for competence in ethnic minority groups. Also needed are longitudinal analyses that track growth and change in these phenomena over time. We do not know of any longitudinal studies in which the primary focus is the development of motivation in ethnic minority youth.

Revitalizing the Socialization (Child-Rearing) Antecedents of Achievement Strivings

In the history of motivation research with racial and ethnic groups, parental socialization once played a pivotal role. Early research from the 1950s on the achievement syndrome by Bernard Rosen and colleagues attempted to examine how child-rearing practices, such as early training in mastery and independence, were related to achievement aspirations and values (e.g., Rosen & d'Andrade, 1959). Yet it was never clearly documented that any components of the achievement syndrome were related to racial and ethnic differences in child-rearing practices, and by 1980, that genre of socialization research had faded from view.

As motivation researchers, we do not lament the early demise of socialization research in ethnic minority youth. Even in general motivation research, it is not clear that particular child-rearing practices are systematically related to specific motivational characteristics in children. That weak empirical literature also frequently portrayed black families in a negative light (see Graham, 1994). More promising, we believe, is a renewed interest in socialization influences, within the context of research on parental socialization about race and ethnicity among American ethnic groups and the socialization of achievement attitudes and values among children of immigrants. We are especially encouraged by this newer literature, because it focuses on normative rather than deviant child-rearing and on adaptive rather than pathological functioning in families of color.

Ethnicity in Context

Throughout this chapter, we have emphasized the importance of situating the study of motivation and competence in the broader social context. We certainly are not unique in this claim. All of the contributors to this *Handbook* acknowledge that personal motivation is responsive to contextual influences. Less clear, however, is *how* to study context when one's primary focus is race and ethnicity. We think of context in the Bronfenbrenner (1979) framework as nested levels of influence with varying degrees of proximity to the individual. Thus, students are nested within peer groups, which in turn are nested within classrooms that are within schools, and so forth. Using this framework, one promising approach to studying ethnicity within context might be to examine how individual motivation and competence develop in classrooms and schools that vary in ethnic composition. For example, do children of color develop stronger ethnic identity (and presumed higher motivation) when their ethnic group is the numerical majority in their school and they have many same-ethnicity peers with whom to affiliate? Or does ethnic identification intensify when one's group is the minority and there are distinct boundaries between groups (e.g., "us" vs. "them")? Is perceived discrimination more psychologically harmful when the target is a numerical ethnic minority? In our research (Bellmore, Witkow, Graham, & Juvonen, 2004; Graham & Juvonen, 2002), we found that targets of mistreatment by peers tend to feel worse when they are members of the *majority* ethnic group in their classroom or school, and that those targets are particularly vulnerable to self-blaming attributions (it may be hard to make an external attribution to the prejudice of same-race others). One might also ask how these same processes are influenced by a changing ethnic context, such as transitioning from a small and relatively homogeneous elementary school to a large and ethnically heterogeneous middle school. School transitions are important turning points in which students lose social status when they go from being the oldest to the youngest in their school, and that loss may be exacerbated by the shift from ethnic majority to minority status.

These kinds of questions are guided by our belief that it is not so much ethnicity per se, but rather ethnicity within a particular social context (e.g., numerical majority vs. minority) that will inform future motivation research. We have to look back to the aftermath of *Brown v. Board of Education* and the desegregation studies of the 1960s and 1970s to find any substantive empirical literature on the psychological impact of racially homogeneous versus heterogeneous school contexts. Regrettably, that literature had all but disappeared by 1980 (see Schofield, 1991), and its only real legacy was that black children had higher self-esteem when they attended racially segregated rather than integrated schools. On the 50th anniversary of *Brown v. Board of Education*, the time seems right to revisit that legacy. Studying ethnicity in context may shed new light on how racial and ethnic diversity can foster achievement strivings and greater competence in people of color.

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