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Expectancy-Value Theory

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In this chapter we discuss expectancy-value theory and review research that has emanated from this theoretical model. We focus in particular on the expectancy-value model developed by Eccles, Wigfield, and their colleagues and research that has tested it. We pay special attention to three broad issues with respect to expectancy-value theory: how expectancies and values develop, how they are influenced by different kinds of educational contexts, and how culture impacts the development of expectancies and values.

Expectancy-Value Theory: A Brief History

The constructs of expectancy and value and theoretical models based on these constructs have a long history in the field of psychology and especially in the achievement motivation field (Eccles et al., 1983; Higgins, 2007; Rose & Sherman, 2007; Weiner, 1992; Wigfield & Eccles, 1992). The expectancy and value constructs initially were defined by theorists such as Lewin (1938) and Tolman (1932). Lewin discussed how the value (or valence) of an activity influenced its importance to the individual, and Tolman discussed how expectancies for success function in different areas. Social psychological theories of attitudes, intentions, and their relations to behavior, such as the theory of reasoned action and the theory of planned behavior, are based in part in expectancy and value constructs (Ajzen, 1991; Fishbein & Ajzen, 1975; see Rose & Sherman, 2007, and Higgins, 2007, for review). Rose and Sherman (2007) defined expectancies as our beliefs about the future. Higgins (2007) initially defined value in terms of the relative worth of a commodity, activity, or person. Later he defined value as the psychological experience of being attracted to (or repulsed by) an object or activity. Valuing something means wishing to attain it; thus for Higgins value is a motivational force and not just a belief.

In the achievement motivation field Atkinson (1957, 1964) developed the first formal, mathematical expectancy-value model in an attempt to explain different kinds of achievement-related behaviors, such as striving for success, choice among achievement tasks, and persistence. Atkinson was influenced by Murray's (1938) notion that various human needs guide behavior, and focused specifically on the need for achievement Murray included in his theory. Atkinson (1957) postulated that achievement behaviors are determined by achievement motives, expectancies for

success, and incentive values. He viewed achievement motives as relatively stable dispositions, and included both a motive to approach success and a motive to avoid failure in the theory, stating that individuals can be described by the relative strength of these approach and avoidance motives. Atkinson defined expectancies for success as the individual's expected probability for success on a specific task (which can range from zero to one). He defined incentive value as the relative attractiveness of succeeding on a given achievement task, and also stated that incentive value is inversely related to the probability for success. Thus, expectancies and values were more situationally or task specific, and also tied closely (and inversely) to one another; an implication of this inverse relationship is that Atkinson argued that highly valued tasks are ones that individuals think are difficult to do. He and his colleagues did an extensive body of laboratory-based research on individuals' achievement strivings under different probabilities for success. One major conclusion from this work is that for success-oriented individuals, motivation to do an activity is strongest when the probability of success is .5 (see Atkinson, 1964; Wigfield & Eccles, 1992, for further discussion of this theory and research emanating from it).

Modern Expectancy-Value Models in Developmental and Educational Psychology

Modern expectancy-value theories (e.g., Eccles, 1987; 1993, 2005; Eccles et al., 1983; Feather, 1982; 1988; Pekrun, 2000; Wigfield & Eccles, 1992, 2000, 2002) are based in Atkinson's (1957, 1964) work in that they link achievement performance, persistence, and choice most directly to individuals' expectancy-related and task value beliefs. However, they differ from Atkinson's expectancy-value theory in several ways. First, both the expectancy and value components are defined in richer ways, and are linked to a broader array of psychological, social, and cultural determinants. Second, these models have been tested in real-world achievement situations rather than with the laboratory tasks often used to test Atkinson's theory.

The Eccles et al. Expectancy-Value Model Eccles and her colleagues' expectancy-value model proposes that these constructs are the most immediate or direct predictors of achievement performance and choice, and are themselves influenced by a variety of psychological, social, and cultural influences (e.g., Eccles, 1987, 1993, 2005; Eccles et al., 1983; Eccles & Wigfield, 1995; Meece, Wigfield, & Eccles, 1990; Wigfield, 1994; Wigfield & Eccles, 1992, 2000, 2002). In their research Eccles and her colleagues have focused on how expectancies, values, and their determinants influence choice, persistence, and performance. They also have examined the developmental course of children's expectancies and values. They initially developed the model to help explain gender differences in mathematics expectancies and values and how these influenced boys and girls' choices of mathematics courses and majors. They broadened the model to other activity areas, most notably sport and physical skill activities (e.g., Eccles & Harold, 1991).

Figure 4.1 depicts the model. Moving from right to left in the model, expectancies and values are hypothesized to influence performance and task choice directly. Expectancies and values themselves are influenced by task-specific beliefs such as perceptions of competence, perceptions of the difficulty of different tasks, and individuals' goals and self-schema, along with their affective memories for different achievement-related events. These beliefs, goals, and affective memories are influenced by individuals' perceptions of other peoples' attitudes and expectations for them, and by their own interpretations of their previous achievement outcomes. Children's perceptions and interpretations are influenced by a broad array of social and cultural factors. These include

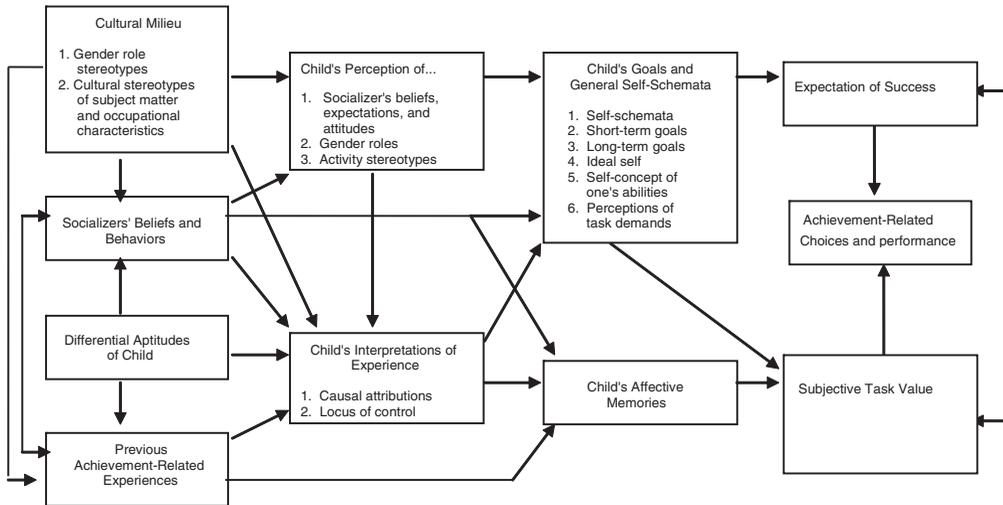


Figure 4.1 Eccles, Wigfield, and colleagues' expectancy-value model of achievement performance and choice.

socializers' (especially parents and teachers) beliefs and behaviors, children's specific achievement experiences and aptitudes, and the cultural milieu in which they live.

Defining the Expectancy, Value, and Ability Belief Constructs in This Model

Eccles and colleagues broadened Atkinson's (1957) original definitions of both the expectancy and value constructs. They defined expectancies for success as children's beliefs about how well they will do on an upcoming task (e.g., how well do you think you will do in math next year?). They distinguished conceptually expectancies for success from the individual's beliefs about competence or ability. These latter beliefs refer to children's evaluations of their current competence or ability, both in terms of their assessments of their own ability and also how they think they compare to other students. Ability beliefs are prominent in many motivation models; Wigfield and Eccles (2000) discuss different definitions of this construct in these models (see also Schunk & Pajares, this volume).

Values have both broad and task-specific definitions (see Higgins, 2007; Rohan, 2000; Wigfield & Eccles, 1992, for review of some of these definitions). In their model Eccles and her colleagues define values with respect to the qualities of different tasks and how those qualities influence the individual's desire to do the task; hence the term *task* value (Eccles, 2005; Eccles et al., 1983; Wigfield & Eccles, 1992). Like Higgins' definition, this definition stresses the motivational aspects of task value. Further, these values are *subjective* because various individuals assign different values to the same activity; math achievement is valuable to some students but not to others.

Eccles et al. (1983) proposed four major components of subjective task values: attainment value or importance, intrinsic value, utility value or usefulness of the task, and cost (see Eccles et al., 1983, and Wigfield & Eccles, 1992, for more detailed discussion of these components). Building on Battle's (1965, 1966) work, Eccles et al. defined attainment value as the importance of doing well on a given task. Attainment value incorporates identity issues; tasks are important when

individuals view them as central to their own sense of themselves, or allow them to express or confirm important aspects of self.

Intrinsic value is the enjoyment one gains from doing the task. This component is similar in certain respects to notions of intrinsic motivation and interest (see Renninger, 2000; Ryan & Deci, 2000; Schiefele, 2001), but it is important to acknowledge that these constructs come from different theoretical traditions. When children intrinsically value an activity, they often become deeply engaged in it and can persist at it for a long time.

Utility value or usefulness refers to how a task fits into an individual's future plans, for instance, taking a math class to fulfill a requirement for a science degree. In certain respects utility value is similar to extrinsic motivation, because when doing an activity out of utility value, the activity is a means to an end rather than an end in itself (see Ryan & Deci, 2000). However, the activity also can reflect some important goals that the person holds deeply, such as attaining a certain occupation. In this sense utility value also connects to personal goals and sense of self, and so has some ties to intrinsic motivation.

Cost refers to what the individual has to give up to do a task (e.g., do I do my math homework or call my friend?), as well as the anticipated effort one will need to put into task completion. Is working this hard to get an A in math worth it? Eccles et al. (1983) emphasized that cost is especially important to choice. Choices are influenced by both negative and positive task characteristics and all choices are assumed to have costs associated with them because one choice often eliminates other options. For instance, choosing to major in history means that one cannot major in another field that also may have some value to the individual. Despite the theoretical importance of cost to choice, to date, cost has been the least studied of the different components of subjective values.

Measuring Ability Beliefs, Expectancies, and Values

Eccles and her colleagues have developed questionnaires to measure children's ability beliefs, expectancies for success, and subjective values in a variety of academic and non-academic domains (e.g., Eccles et al., 1983; Eccles, Wigfield, Harold, & Blumenfeld, 1993; Wigfield & Eccles, 2000; see these articles for sample items). These measures have been used with children and adolescents across the school years, and have clear factor structures, good psychometric properties, and demonstrated relations to different achievement and choice outcomes (Eccles & Wigfield, 1995; Eccles et al., 1993; Meece et al., 1990).

There also are some other measures of task value in addition to the scales developed by Eccles, Wigfield, and their colleagues. The Motivated Strategies for Learning Questionnaire developed by Pintrich, Smith, Garcia, and McKeachie (1991) includes a scale that measures the different aspects of task value defined by Eccles et al., but it does not have enough items measuring task values to create subscales for the different components. Graham and Taylor (e.g., Graham & Taylor, 2002; Graham, Taylor, & Hudley, 1998; Taylor & Graham, 2007) devised an innovative measure of task value that asks students to nominate other students whom they most admire, like, and want to be like. They also ask their participants to say who in their class tries hard and gets good grades, who doesn't try and gets poor grades, and who follows or doesn't follow school rules. Graham and her colleagues report interesting gender and ethnic differences in whom children admire, which they interpret as indicating how much the participants in their study value school.

In sum, there are available in the literature well-established measures of ability beliefs, expectancies for success, and task value. These measures can be extended to additional achievement

domains that have not been studied as much as some of the academic domains have. They also can be written with more or less specificity; for instance, in the math domain children's valuing of specific kinds of math could be assessed. One of the measurement challenges for researchers is matching theoretical constructs to appropriate measurement tools. For instance, the constructs of ability beliefs, expectancies for success, and self-efficacy have some overlap in how they are defined, but also differ in important ways (see Pajares, 1996; Schunk & Pajares, this volume, for further discussion). Too often researchers state that they are measuring a certain construct but use a measure that perhaps does not capture the construct in the way it is defined theoretically. This can lead to conceptual confusion and conflicting results, and thus impede the advancement of the field.

Major Research Findings on Expectancies and Values

Expectancies, Values, Performance, and Choice There is clear evidence from a variety of studies in different domains that individuals' expectancies for success and achievement values predict their achievement outcomes, including their performance, persistence, and choices of which activities to do (e.g., Bong, 2001; Eccles, 1993; Eccles et al., 1983; Dennissen, Zarret, & Eccles 2007; Durik, Vida, & Eccles, 2006; Meece et al., 1990; Simpkins, Davis-Kean, & Eccles, 2006). Students' expectancies for success and beliefs about ability are among the strongest psychological predictors of performance. Students' subjective task values predict both intentions and actual decisions to persist at different activities, such as taking mathematics and English courses and engaging in sports activities.

The relations are evident in children as young as first grade, although they strengthen across age (Eccles, 1984; Eccles et al. 1983; Eccles & Harold, 1991; Meece et al., 1990; Wigfield, 1997). These relations also extend over time; Durik et al. (2006) reported that the importance children gave to reading in fourth grade related significantly to the number of English classes they took in high school. Also, children's interest in reading measured in fourth grade indirectly predicted (through interest measured in 10th grade) high school leisure time reading, career aspirations, and course selections. In another longitudinal study looking at relations of performance, ability beliefs and values, and choice, Simpkins et al. (2006) found that children's participation in math and science activities in late elementary school related to their subsequent expectancies and values in these areas, which in turn predicted the number of math and science courses they took through high school. Interestingly, in this study it was children's ability-related beliefs in high schools that predicted choice more strongly than did students' values; Simpkins et al. speculated that this may have occurred because students know the importance of such courses for college entrance, and are more likely to take them when they expect to do well in them.

Battle and Wigfield (2003), in one of the few studies to include the cost component of achievement values, found that attainment and utility value were positive predictors of college students' intentions to enter graduate school, but the perceived psychological cost of graduate school attendance was a negative predictor. Thus, when students value something they also report they are more likely to engage in the activity. When the activity is seen as having too great a cost, they will be less likely to engage in it.

Development of Expectancy-Related Beliefs and Values One important developmental question is how distinct the expectancy and value constructs are in children of different ages. Eccles & Wigfield (1995) and Eccles et al. (1993) factor analyzed children's responses to questionnaire measures of

each construct. The major findings from these analyses were: a) children's expectancy-related beliefs and values formed distinct factors in children as young as 6 years; b) *within* a given domain (e.g., reading, math, sports) children's beliefs about their current competence, expectancies for success, and perceived performance load on the same factor, suggesting that these components comprise a single concept for children age 6–18; c) *within* a given domain the components of achievement values identified by Eccles and her colleagues can be distinguished factorially in children in fifth grade and beyond; and d) *across* activity domains competence-related beliefs form distinct factors in children as young as 6, indicating that children differentiate across domain with respect to these beliefs (e.g., expectancy-related beliefs in math are factorially distinct from expectancy-related beliefs in reading). The same is true of achievement values.

A second important developmental question is how the level of children's expectancy-related beliefs and values change across age. The general pattern is that children's competence beliefs for different tasks decline across the elementary school years and through the high school years (see Dweck & Elliott, 1983; Eccles, Wigfield, & Schiefele, 1998; Stipek & Mac Iver, 1989; Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006, for review). Many young children are quite optimistic about their competencies in different areas, and this optimism changes to greater realism and (sometimes) pessimism for many children. Researchers in the United States have examined change over the entire elementary and secondary school years in children's competence beliefs for math, language arts, and sport (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Fredricks & Eccles, 2002), and Watt (2004) looked at change across middle and senior high school in Australia. Jacobs et al. found that children's perceptions in each area were strongly positive early on. However, the overall pattern of change was a decline in each domain. There were some differences across domain 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 then 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. Fredricks and Eccles and Watt also found declines over time in competence beliefs and values, although the specific trends were somewhat different across these studies.

Two caveats about these findings should be mentioned. First, most of the research just described is normative, describing mean-level change across groups of children. Researchers have shown that these patterns do vary for children achieving at different levels (Harter, Whitesell, & Kowalski, 1992; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991). Second, it also has been shown that some preschool children react negatively to failure (see Dweck, 2002; Stipek, Recchia, & McClintic, 1992). Children reacting negatively to failure early on may be more likely to be pessimistic about their abilities even in the early elementary school years (Burhans & Dweck, 1995). Thus, not all children are overly optimistic about their abilities in different areas.

Relations of Expectancy-Related Beliefs and Values How do the different components of task value and expectancy-related beliefs relate to one another over time? Wigfield et al. (1997) studied change across the elementary school years in children's expectancy-related beliefs and values in several domains (measuring the usefulness and interest components of value). In contrast to Atkinson's (1957, 1964) view that expectancies and values are inversely related, in this study at all grade levels and in all domains relations among the constructs were positive. The positive relations increased in strength across age. For instance, at first-grade children's competence beliefs and values in math and reading had a median correlation of .23. By sixth grade the median correlation of these variables in these domains was .53. Thus children's task values, expectancy,

and competence beliefs increasingly are positively related, suggesting that children come to value what they are good at. Indeed, Wigfield et al. (see also Wigfield & Eccles, 1992) explained the differences between their work and Atkinson's by stating that in real-world achievement situations individuals value the tasks at which they think they have a good chance of doing well. Similarly, Harter (2006) has argued that being competent at activities one thinks are important is an important positive predictor of self-esteem. When one lacks competence at activities deemed important, self-esteem can suffer.

A further interesting question from a developmental perspective is whether competence-related beliefs or achievement values begin a causal sequence in these observed relations. That is, do children come to value activities at which they are competent, or do children learn to be competent at things they value? Bandura (1997) has argued that efficacy beliefs are the prior causal factor; children learn to enjoy those activities at which they are competent. Jacobs et al. (2002) reported data that supports this claim, in their longitudinal study of first- through 12th-grade children. They found, first, that children were more likely to value math, sports, and language arts activities when they believed they were competent at those activities. Further, change in competence beliefs predicted strongly the developmental trajectory in children's subjective task values, accounting for over 40% of the variance in these trajectories.

Development of Expectancy-Related Beliefs and Values: Psychological and Experiential Influences

What psychological and experiential factors influence the development of expectancy-related beliefs and subjective values? Much has been written about how children develop beliefs about competence in different areas (e.g., Bandura, 1997; Dweck, 2002; Schunk & Pajares, 2002, this volume; Stipek & Mac Iver, 1989; Stipek et al., 1992). Children's mastery experiences during the infancy and preschool years are one important influence. When children learn to master different tasks and activities on their own (i.e., become a successful causal agent in their interactions with the world), their sense of competence can grow. Feedback from parents also is a crucial influence during these years, and beyond. Parents who encourage their children to master different things and provide appropriate feedback to them help children develop a sense of competence and control. Overly critical parents can destroy children's beliefs about their competence and expectations for the future (Dweck, 2002; Heyman, Dweck, & Cain, 1992). On the other hand, Dweck and her colleagues also have argued that parents who praise children's abilities rather than their effort and persistence may inadvertently weaken their child's sense of competence because such children do not learn how to deal with and overcome challenges and even failures.

When children begin school, they receive information from two main sources that can have strong influences on their competence beliefs. First, they are evaluated more systematically, formally, and frequently than they are at home, and these evaluations become more prevalent and important as children go through school. Receiving clear evaluations in different areas helps children develop distinct ideas about their competencies in these areas, and also to have a better understanding of their strengths and weaknesses in each area. The ways in which these evaluations are done can have either positive or negative effects on children's competence beliefs and motivation. For example, the strong push for high-stakes testing in school can weaken the competence beliefs and motivation of students doing poorly on such tests (Deci & Ryan, 2002).

Second, once they begin school children engage more systematically in social comparison with others as a way to judge their own abilities (Ruble, 1983). Being placed in a classroom with a group

of same-age peers makes such comparisons easy to do, and they can alter the sense of competence children have based on their own mastery experiences in important ways. For instance, a first grader may think she is good at reading because she has mastered the alphabet; however, when she sees the child sitting next to her reading the Harry Potter series on her own, she likely will re-assess her own competencies. Schools vary with respect to how they handle social comparison information; some highlight it by posting work and grades on classrooms walls, and others minimize it to the extent possible (it can never be eliminated). Regardless of schools' and teachers' approaches to sharing information about other students' performance, all students use the information they receive about how others are doing to judge their own experiences. As Schunk and Pajares (this volume) put it, these kinds of information sources help children calibrate their ability beliefs in different areas, and likely are one reason why children's ability and expectancy beliefs relate more strongly to their performance as they get older.

Less has been written about the psychological and experiential factors influencing the development of children's task values. Some of the same factors just discussed that influence the development of expectancy-related beliefs likely influence the development of children's subjective values as well. Children's own experiences with different activities can influence how much they like or are interested in different activities; for instance, some children will find reading fascinating, and others will find it boring. Parents and teachers provide children with feedback about the importance and usefulness of different activities (e.g., doing well in school is important; you need to learn math so you can become a scientist), which can influence children's own valuing of them (Wigfield et al., 2006). Children also likely compare their interest in different activities to those of their peers, and these kinds of value-related social comparisons may influence children's own valuing of the activity. More broadly, cultural norms and ideas about what is appropriate for different children to do can influence the value children place on different activities (see Eccles, 2005). If engineering is defined as a male-dominated domain in a culture, then females may be less likely to value it and, as a consequence, choose it less as a major.

Wigfield (1994) discussed how the different components of value may develop across the childhood years. He made several points with respect to their developmental trajectory. First, given the factor analytic results reported earlier, it would appear that the components of task value are not clearly differentiated until the middle childhood years. With respect to which develops first, Wigfield argued that task value likely appears first in the form of interest in different kinds of activities, toys, and other experiences. Children are actively involved in a variety of things, and they likely become quite interested in some and less interested in others. These interests may be quite transitory at first, but over time they can develop into stable, longer lasting interests (see Guthrie, Hoa, et al., 2007; Hidi & Harackiewicz, 2000, for discussion of how immediate or situated interests in specific activities can develop into long-term personal interests). Because usefulness requires a more elaborate understanding of the purposes of different activities and because importance is defined with respect to the individual's sense of self, these task value components likely develop through middle childhood and into adolescence.

Wigfield (1994) argued further that children's conceptions or understandings of what it means to value something likely change over time as well. This is perhaps most easily illustrated with the usefulness component of task value. As discussed earlier, utility or usefulness has to do with how an activity relates to other plans the individual has, such as taking a certain math class in order to get into veterinarian school. In this instance the student may not be especially interested in the class, but is taking it for another purpose. Young children likely have a rudimentary sense of this process, as the idea of doing one thing in order to accomplish something else is complex

cognitively. Further, in terms of their school experiences young children probably have a sense that one of the reasons they attend school is to learn things they will need later on, but their initial sense of exactly what skills they will need later on in life in all likelihood is murky. As they go through school and develop interest in particular school subject areas, they likely then begin to understand better how different subjects or activities can be useful in furthering these interests.

As noted earlier, attainment value or importance relates to how tasks or activities fit in with the individual's sense of themselves. Tasks gain importance when they are tied to one's identity as a person. Given this definition it is likely that importance undergoes an important developmental progression as well, perhaps (like utility) arising out of interest in different activities. As a child more clearly understands who she is and which kinds of activities relate to that emerging sense of self, the importance component of task value will become more clearly defined, and children will have a clearer sense of the importance of different tasks and activities to them. For instance, a student who finds math interesting and does well in math may begin to see math as an important part of her academic identity. Thus, math activities would take on more salience for this individual, and become increasingly important to her.

Sources of Value Recently, Higgins (2007) discussed five general sources of our value for different activities or tasks. The first is need satisfaction, where the activity satisfies some kind of biological need, such as hunger reduction. Higgins described this source as quite basic in the sense that no reflection or cognition is involved in this source of value. The second source of value is shared beliefs about what is desirable. Although this source rests in the individual because it consists of beliefs, culture and social context have a strong influence on what kinds of beliefs about the desirable are shared among a given group of individuals. Higgins discussed how standards of excellence are involved in this source of value.

The third source of value is derived from the relation of one's current actual self to either desired or undesired end states. Higgins argued that socializers' views on what kind of person their child should turn out to be are a strong influence on the development of values, and influence the person's ideas about what appropriate end states are and how to reach them through the regulation of their behavior. He also stated that social comparison is an important source of information with respect to the self's relation to desired end states. One way of understanding how close one is to reaching the desired or ideal end state is to compare oneself to similar others. Discrepancies between where one is and where one thinks one should be (the ideal or ought self) are also crucial; when actual and ought selves are closer to congruence, then the individual is better off psychologically. Thus, activities that help promote congruence between the actual and ideal self should have more value to the individual. To continue with the example above from math, students who value math may have an "ideal self" with respect to math. Activities that help them attain aspects of this ideal self will be perceived as valuable to these individuals.

Fourth is value from evaluative inference, and Higgins (2007) focuses on Bem's (1965, 1967) self-perception theory in discussing this source of value. Bem discussed how people make inferences about themselves and attempt to judge their own actions in logical and inferential ways. Activities will be valued to the extent that they help individuals reflect on and evaluate themselves accurately. Further, individuals prefer it when the actions in which they engage come from their own volition; such actions and activities are of most value to the individual.

Fifth is value from one's experiences. Higgins (2007) tied this source of value to the long-standing distinction in both philosophy and psychology between belief and action, arguing that beliefs and cognitions are not enough to generate action and therefore cannot be the sole source

of the value of something. Higgins discussed several broad types of experiences that can create value. First are experiences that create pleasure versus those that create pain, and Higgins discussed the large body of work showing that in general humans value activities that provide pleasure more than those that provide pain. Indeed, he argued that the utility of an action often is based in its production of pleasure rather than pain. Moral or ethical experiences are different from the previous type because they involve consideration of how one's action influences others, and also involve approval and disapproval rather than just pleasure or pain. Next, there are regulatory fit experiences, which have to do with how one's actions during the pursuit of a goal relate to their overall orientation to the goal. Thus, it is not the outcome itself that is the source of value for an activity, but the way in which the activity is approached. Related to this latter type are understanding experiences, or experiences having to do with making sense of the world and one's actions in it. Higgins ties these experiences to attribution theory and Festinger's (1957) cognitive dissonance theory. People like to think they understand the world and have balance and consistency in their views about their actions. When there is dissonance rather than consistency, individuals will try to overcome the dissonance. Thus activities that reduce dissonance have more value. Finally, agentic experiences refer to experiences that individuals believe they control. Following White (1959) and others (including Bandura, 1977), Higgins discussed how seeing oneself as an agent can create value irrespective of whether a particular (biological) need is being satisfied. That is, the experience of agency is valuable in and of itself, irrespective of how the ultimate action one engages in satisfies a need. Further, when faced with a challenging or difficult activity the sense of agency becomes particularly important, and actions that help the individual overcome challenges are especially valuable.

Sources of Value: Developmental Considerations How might these different sources of value play out over the course of child and adolescent development with respect to children's valuing of different academic activities? With respect to need satisfaction, in certain respects this source may not be directly relevant to the valuing of academic activities, because such activities do not directly satisfy biological needs, if need satisfaction is taken in the strict sense of the biological need satisfaction that Higgins (2007) describes. However, there are a number of needs that children have that are relevant to this source. Foremost of these is the need or desire to please important adults; most children do appear to want to do this. Because school is very important to most parents and certainly to teachers, a way to satisfy this need for approval from adults is to work hard in school and attempt to do well. Indeed, the literature on how teachers socialize children in school suggests that teachers often rely on students' desire to please the teacher as a way to socialize children into conforming to the rules and roles of school (Blumenfeld, Pintrich, Meece, & Wessels, 1982). As children get older, the desire to please parents and teachers may wane to a degree, and the desire to please peers may become more important. With respect to the valuing of school, there likely are individual differences with respect to how different peer groups approach school. Groups of children with similar levels of motivation and achievement tend to coalesce (Kindermann, 1993, 2007) and so children whose peers wish to succeed in school likely themselves value school, at least in part to get along well with the group. Peer groups who resist school may lead children in that group or who want to be in that group to devalue school.

The shared beliefs about what is desirable also takes its initial form from parents' beliefs about schooling, and then teachers' beliefs. As noted earlier, most parents state that schooling is important to their children and think of education as the major way for children to ready themselves to be productive citizens in our society (Galper, Wigfield, & Seefeldt, 1997; Stevenson, Chen, &

Uttal, 1990). They therefore likely communicate these beliefs to children as a way for children to understand that school is important. Many teachers also communicate the importance of school to children, and these messages and the ways in which teachers communicate their own enthusiasm for learning increases children's valuing of learning (Brophy, 1999, 2004). As children get older, these messages and conversations about school become more specific, as children, parents, and teachers come to understand children's academic strengths, weaknesses, and interests. It likely is the case that when parents and children's beliefs about what is important in school and its outcomes (e.g., going to medical school) are similar, children's valuing of these activities is increased in important ways. If children and parents have quite different ideas about this, problems could arise that could lead children to de-value at least some aspects of schooling.

The next two sources (connections of self-regulation to end states, making evaluative inferences) involve relatively complex cognitive judgments and so likely are not major sources of academic task value during the early school years. As children develop clearer ideas about themselves, learn to understand and regulate their behavior, and have clear ideas of who they are and who they want to be, these two sources may become more prominent. We suggest that this will begin to occur during the middle childhood years and continue through adolescence.

Higgins' (2007) final source of value is experience. There are many ways in which children's experiences with different tasks and activities can influence the development of their valuing for these activities. Examples were given earlier about how children's experiences with different toys, books, and other things may generate interest in those activities, or decrease it. A major aspect of experience as a source of value is the extent to which the activity provides pleasure or pain, and Higgins noted that most individuals are motivated to obtain pleasure and avoid pain. Children's experiences in school determine how much school is pleasurable versus painful, in a number of ways. We mention two major sets of experiences. First is children's performance in school. Children who do well in their classes, receive good grades, and otherwise do well in school are more likely to see school as pleasurable than are children who do poorly; for this latter group school attendance can become psychologically painful as their failures in school mount. Thus following Higgins, the first group of children should value school more. Second are children's experiences with different teachers and school contexts; do teachers teach in interesting ways, attempting to engage children in school and otherwise support their learning activities? Are the schools that children attend strong learning communities, or not? These kinds of contextual experiences likely have a great deal to do with how much children value schooling and learning (Brophy, 1999, 2004; Wigfield, Hoa, & Kluda, 2008). We return to a specific example of this later. Another of the experiential sources that may be present quite early is agentic experiences. When children do well in school and believe they are the ones responsible for that good performance their value for school may grow more strongly.

The other kinds of experiences Higgins (2007) described (moral or ethical experiences, "fit" experiences, understanding experiences) all may become more important as children proceed through school, in large part because of the complex cognitive demands they place on children. Truly understanding the causes or reasons for one's experiences in school or other places is something that develops over the childhood years (Connell, 1985; Wigfield et al., 2006).

The Role of Educational Contexts in the Development of Expectancies and Values

Children's experiences in school have strong influences on their developing expectancy-related beliefs and values, and these influences range from broad school and classroom climate factors

to the specific kinds of interactions children have with teachers and classroom activities (Eccles & Midgley, 1989; Wigfield, Eccles, & Rodriguez, 1998). Indeed, many researchers are studying how different educational contexts influence children's developing motivation (see Perry, Turner, & Meyer, 2006; Urdan, 1999; Wigfield et al., 1998 for review). We have learned much about educational contexts which support students' motivation and also those that don't (Perry et al., 2006; Stipek, 1996, 2002; Wigfield et al., 1998). Some of the principles emerging from this work are that classrooms can foster students' motivation when: a) there is a focus on learning and mastery rather than solely on performance outcomes; b) teachers hold the belief that all children can learn and have high expectations for children's learning; c) students have increasing control over their learning and many opportunities for making decisions about what they do in school; d) relationships between teachers and students are positive and emotionally supportive; e) relationships among students are collaborative and cooperative; f) public information about student performance is minimized; and g) the cognitive content of the curriculum is challenging, interesting, and focused on higher-order thinking for all children.

Although we have learned much about the kinds of educational contexts and practices that support student motivation, there still are not many instructional programs in different subject areas that directly incorporate these ideas into daily teaching practices. One reading comprehension instructional program that does this is Concept Oriented Reading Instruction (CORI). Here we describe CORI and discuss its impact on constructs related to children's expectancy-related beliefs and values, as one specific example of positive instructional influences on motivation.

The purpose of CORI is to help children become truly engaged readers, that is, strategic, knowledge-driven, motivated and socially interactive in their reading activities (Guthrie, Wigfield, & Perencevich, 2004a). To achieve this aim, CORI teachers are trained to instruct students in a variety of reading comprehension strategies for information and narrative text and to implement a set of five motivational practices grounded in achievement motivation research: hands-on activities, conceptual knowledge goals, interesting texts, autonomy support, and collaboration support.¹ Reading instruction is integrated with instruction related to a conceptual theme in science or social studies, such as "The Interdependency of Life in Communities" that provides rich content for teaching the comprehension strategies and applying the motivational practices (see Guthrie et al., 2004a; Swan, 2003, for detailed overviews of CORI). Here we focus on our recent CORI project that merged reading and science instruction during elementary school.

In the theoretical framework underlying CORI, it is the joint implementation of strategy instruction and motivational practices that fosters students' engagement in reading, and thereby their growth in comprehension (Guthrie & Wigfield, 2000). Learning specific comprehension strategies, such as activating background knowledge and making inferences, may contribute to children increasing their expectancies for success in reading and valuing of it. However, because of the nature of this Handbook we focus here on the CORI motivational practices as they were implemented in the most recent CORI intervention study conducted in elementary school because they may relate more directly to children's expectancies and values. (For more information about the comprehension strategies, see Guthrie & Taboada, 2004.)

Hands-on activities is the practice of involving students personally in experiments, observations, and simulations of processes related to the conceptual theme of the unit currently being taught (Guthrie, 2004; Guthrie, Wigfield, & Perencevich, 2004b). For example, for the "Interdependency of Life" theme, students observed pairs of horseshoe crabs and conducted a bee pollination experiment, both across multiple days (Perencevich, Guthrie, & Taboada, 2004). Teachers implement the hands-on activities, especially at the start of a unit, to stimulate students to form their own

questions and interests related to the conceptual theme. The activities are designed to *not* provide all the information students need to satisfy their curiosities, but rather to encourage them to read and search for further information in books, articles, and Internet resources, that is, increase their motivation and valuing of reading. Indeed, one study of CORI showed that participation in relatively high numbers of stimulating tasks tied to hands-on activities was related to increased intrinsic reading motivation during the course of the intervention (Guthrie et al., 2006).

Second, CORI teachers emphasize *conceptual knowledge goals* and the relatedness of all activities to the one central theme throughout the instructional unit (Guthrie, 2004; Guthrie et al., 2004b). In other words, CORI teachers emphasize mastery and learning goals much more than performance goals. For example, for the “Interdependency of Life” theme, students focused on understanding such concepts as mutualism, parasitism, predation, and competition (Perencevich et al., 2004), rather than, for example, memorizing facts about numerous animals and plants. This practice aligns with the contention of Higgins (2007) that shared beliefs are an important source of value. Having teachers who frequently communicate that they want students to learn a set of concepts related to the instructional theme and who explicitly teach students about those concepts and how they can learn more about them (i.e., by using reading strategies) can influence children to espouse conceptual knowledge goals themselves and help them understand the key role that reading may play in fulfilling them.

The next motivational practice, the *provision of interesting texts*, means that rather than employing basal readers or science textbooks, CORI supplies students with a wide variety of high-quality information and literary trade books related to the conceptual theme. The information books always include features, like a table of contents, index, and glossary, that make them apt for applying the comprehension strategies taught in CORI. The literary books include novels, poetry, folk tales and legends. Numerous books of both types are selected that are appropriate for diverse reading levels. Special care is taken to find books for struggling readers that do not sacrifice depth, accuracy, or interestingness for easiness to read (Davis & Tonks, 2004). This practice, then, particularly supports students’ expectancy beliefs, as it helps enable all students to frequently experience success, as well as enjoyment, in their school reading, which should lead to more positive beliefs about their future chances for success in the classroom.

A fourth CORI motivational practice is *autonomy support*, which means helping students develop control over their learning (Guthrie, 2004; Guthrie et al., 2004b). For example, students might be given choices about what books or sections of books to read or in what written or oral format they will share the knowledge they gleaned from reading. CORI teachers, however, support student autonomy not by simply letting their students make lots of choices, but by modeling decision-making processes and carefully scaffolding the choices that they give. Students’ valuing of reading may increase due to autonomy support if students make decisions that reflect their personal interests, preferences, and talents, giving them more investment in the outcomes of activities when the teacher decides everything for them (Au, 1997; Guthrie et al., 2004b). In other words, the personalization of reading activities promotes the attainment value or importance that students associate with reading.

Lastly, CORI teachers enact the practice of *collaboration support* by frequently providing opportunities for students to work as pairs, teams, or a whole class (Guthrie, 2004; Guthrie et al., 2004b). They may employ several types of group sizes within even one period, and often form groups on different bases: for instance, sometimes they consist of students of similar reading levels, whereas other times they consist of mixed levels, or are formed on the basis of student interests. Some tasks on which students collaborate are conducting science experiments, generating

questions for research, analyzing novels, and writing and presenting reports. Teachers give their students guidelines for interacting and sometimes assign or have students select roles within their groups. This practice is implemented in CORI because collaboration in reading has been linked to increased reading comprehension performance (Ng, Guthrie, Van Meter, McCann, & Alao, 1998) and because social interaction is intrinsically motivating for many students (Guthrie, 2004).

Much research has been conducted on CORI, and results indicate that this set of practices, implemented in conjunction with reading comprehension strategies, has significant positive effects on elementary school students' reading motivation as well as their reading comprehension and other cognitive variables. Recently, Guthrie, McRae, & Klauda (2007) meta-analyzed 11 quasi-experimental studies that investigated how CORI impacted third- through fifth-grade students, in comparison to two other types of instruction: an intervention that involved the strategy instruction but not the motivational component of CORI and traditional reading instruction employing basal readers. Most relevant to the value construct of expectancy-value theory, CORI showed moderate to strong positive effects on self-report measures of curiosity ($M ES = .47$; $N ES = 5$) and task orientation (that is, enjoying reading and reading for long periods; $M ES = .29$; $N ES = 3$) and a composite measure of intrinsic reading motivation ($M ES = 1.20$; $N ES = 1$). Most relevant to the expectancy construct, CORI showed moderate effects on self-report measures of self-efficacy ($M ES = .49$; $N ES = 5$) and perceived difficulty ($M ES = .29$; $N ES = 2$). In addition, CORI had moderate to strong positive effects on several cognitive variables, including reading comprehension (measured with both standardized and experimenter-created measures), reading strategy use, science knowledge, word recognition speed, and oral reading fluency.

Broader Cultural Influences on Expectancy-Related Beliefs and Values

Now, we turn to cultural influences on the expectancy, task value and ability belief constructs. As stated above, the Eccles et al. (1983) expectancy-value model was originally developed to explain gender differences in mathematics performance and choice, a sociocultural phenomenon in and of itself. Further, from the beginning, it has been acknowledged that cultural influences help determine expectancy beliefs and values, and their relationships with choice, persistence, and performance. Therefore this model is an exceptionally appropriate starting point for investigating motivation and behavioral choices in cultural context (Wigfield, Tonks, & Eccles, 2004).

To consider culture as a determinant, we consider cross-cultural research that has been conducted on the key constructs of the model in Figure 4.1. Included are studies comparing students who live in different countries, which is one of the many meanings of the term cross-cultural as it applies to psychological research (Poortinga, 1997). This discussion is framed in terms of the key constructs and links from the Eccles et al. model (1983) that have been addressed in cross-cultural research.

Cross-Cultural Research on Expectancy and Ability Beliefs There has been some cross-cultural research on expectancy beliefs and ability beliefs. One group of researchers looked cross-sectionally at the competence beliefs of second- and eighth-grade students in Hong Kong (Chang, McBride-Chang, Stewart, & Au, 2003), and found more positive beliefs among the younger children in the domains of academic and sports self-competence. Such results are similar to findings in the United States reviewed above. The authors wrote that similar to U.S. children, Hong Kong children face various transitions around the time of middle school that may cause competence beliefs to decrease. It would be interesting to know if such decreases occur universally and what role culture plays in this process.

A number of studies have looked at mean differences in competence beliefs across cultures, generally finding that students in the United States, Canada, and England have higher competence beliefs than students in East Asian cultures and in Russia (e.g., Elliott, Hufton, Illushin, & Lauchlan, 2001; Kwok & Lytton, 1996; Stevenson, Lee, Chen, Stigler, et al., 1990; Stigler, Smith, & Mao, 1985; for more complete review, see Hufton, Elliott, & Illushin, 2002a, and Zusho & Pintrich, 2003). Such differences between East Asian and Western cultures have been explained in terms of the psychological tendency for students from East Asia to self-criticize, whereas students from Western cultures tend to self-enhance in their presentations (e.g., Heine & Hamamura, 2007; Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997). A number of researchers have investigated this phenomenon in recent years, focusing mainly on Japan and the United States, and the literature has become increasingly complex, some researchers claiming that self-enhancement is universal, and others arguing that it is not. For example, Sedikides, Gaertner, & Toguchi (2003) studied U.S. and Japanese university students and found that Japanese students do self-enhance, but that they focus on collectivistic attributes such as cooperation and responsibility to the group, whereas U.S. students tend to self-enhance on individualistic attributes such as independence and putting oneself before the group. Conversely, after conducting a meta-analysis, Heine and Hamamura concluded that compared to Westerners who self-enhance, East Asians do not self-enhance, while Asian Americans' level of self-enhancement fell in between these two groups. The authors' interpretation would seem to then explain the higher ratings of self-competence in the above studies.

Cross-Cultural Research on Task Values In general, there has been less work done on students' task values in non-western settings than on students' expectancies and ability beliefs. Nevertheless, some studies exist, and provide a good base for further research. Bong (2001) included three components of task value (importance, usefulness, and interest) in her study of motivational constructs among Korean middle and high school students. Her results were consistent with studies in Western groups of students: Task values in four different subject areas were distinct conceptually, but somewhat more differentiated among the high school students, as compared to the middle school students, implying developmental change in differentiation. In addition, task values correlated positively with academic self-efficacy and mastery goal perceptions. Notably in this study, Bong wrote very little about cultural influences, nor about differences in the task values of Korean students and Western students, perhaps due to the striking similarities in her findings.

Another study by Henderson, Marx, and Kim (1999) investigated U.S., Korean, and Japanese children's interest in numbers, words, and ideas, which they called academic activities. Using cross-sectional data and a one-item indicator of interest, they found a decrease in children's interest in numbers and words from second to fifth grade. Although preliminary, this finding is consistent with decrease in subjective values found by Eccles and colleagues (see above). Clearly, more research looking at the development of task values in various cultures is needed.

Turning now to the question of whether students in different cultures value activities differently, a handful of studies have addressed this. Stevenson, Lee, Chen, Lummis, et al. (1990) had first and fifth graders from Chicago and Beijing rate their interest in math. Although a higher percentage of Beijing students (85%) reported liking math than did Chicago students (72%), both groups were relatively high. Randel, Stevenson, and Witruk (2000) reported that 11th grade students in Germany reported liking math more than Japanese 11th graders. Findings are too few to draw any meaningful conclusions in this area. Further, interest and other aspects of task values may take on different meanings, depending on culture and language. Therefore, research assessing various aspects of task value and investigating meanings unique to different cultures is needed.

Regarding how task values relate to performance and choices cross-culturally, a few studies have shown that interest measured by items similar to those used by Eccles, Wigfield and colleagues relates to children's achievement. Stevenson, Lee, Chen, Stigler, et al. (1990) showed that relations between interest in math and achievement in math were similar among first and fifth graders in Taiwan, Japan, and the United States. Randel et al. (2000) showed a positive correlation between math attitude (interest in and liking of math) and achievement in Japanese 11th graders, but not their German counterparts. We know of no cross-cultural work relating task values to choice similar to work done by Eccles, Wigfield, and colleagues. How task values relate to students' performance and choice in different cultures is a wide open field, and we look forward to future research in this area.

Differences in the Meaning of Ability Beliefs and Values across Cultures Central to any discussion of cross-cultural research should be the question of whether a construct has the same meaning or is perceived in the same way in different cultures. Van de Vijver (2001) wrote about the importance of ensuring that constructs are equivalent in the different cultural groups when doing cross-cultural research. Differences in construct meaning can jeopardize the equivalence of data across cultural groups. This work has not been done on expectancy beliefs per se; however, some researchers have investigated such meaning differences concerning students' ability beliefs, a belief closely connected to expectancies. Hufton, Elliott, and Illushin (2002a, 2002b) interviewed adolescents in England, Russia, and the United States, and found cultural differences in the students' notions of ability. For example, students in Russia were the most likely to see ability as the outcome of effort, and exerted the most academic effort compared to students in the other two countries. U.S. students discussed "smart" as something that can be increased by effort, and British students saw intelligence as somewhat less changeable. The authors noted that measures of ability beliefs need to reflect such differences in meaning.

As noted earlier, very little cross-cultural work has been done on the meaning of value as conceived in expectancy-value theory. Wigfield et al. (2004) speculated about ways that each of the components of task value might differ across cultures. Utility value or usefulness is a good example. In cultures where high importance is placed on the group (i.e., collectivistic cultures), usefulness to the group may play a large role in determining an individual's utility value of a task. In addition, different adult roles may be valued differently across cultures, so then the utility value of behaviors and activities that are instrumental in achieving those adult roles will also vary across cultures. For example, school teachers may be valued more highly in East Asian countries than in the United States (Stevenson & Stigler, 1992). This respect could cause students in East Asia to value the behaviors and activities that lead to becoming a teacher more highly than students in the United States. One could speculate in similar ways for each of the value components, indicating that cross-cultural studies on the components of task values are likely to yield interesting findings.

All in all, few researchers have looked at the expectancy-value model of Eccles and colleagues in other cultures. Therefore our knowledge based on non-Western research only skims the surface of possibility. Expectancy-value theory is well-suited for cross-cultural investigations, as it affords tests of individual links within the model (see Figure 4.1), but is flexible and adaptable to change based on new findings from diverse populations. As Wigfield et al. (2004) noted, based on future research done in various cultures, additional constructs may need to be added, and existing constructs may need to be adapted to better explain linkages between constructs in different cultures.

Conclusions

Research stemming from expectancy-value models of motivation continues to thrive in various achievement domains, as researchers from across the world have used these models as theoretical frameworks for their work. We have learned much about how children's expectancy-related beliefs and values change across the elementary and secondary school years, relate to one another, and predict outcomes such as performance in different areas and choices of activities to pursue. We also have learned how different educational contexts and practices influence children's expectancies and values.

We close with two general suggestions for future research directions in this area. First, as research on expectancy-related beliefs and values continues, we think it is especially important to continue to focus on achievement values. Although research on task values has increased, it still lags behind research on expectancy-related beliefs. We think an understanding of children's valuing and de-valuing of different activities is particularly important for developing interventions to foster children's motivation, especially for children who seem apathetic or resistant to schooling. Indeed, Brophy (2004) says that student apathy is the most challenging motivational problem that teachers face. Graham and Taylors' recent work is an important step in this direction, but more work is needed.

Second, we need much more work on the development of expectancies and values in diverse groups of children. Although this work is increasing (see Wigfield et al., 2006, for review), much more needs to be done. Gender differences in expectancies and values have been a continuing focus of Eccles, Wigfield, and their colleagues work. Taylor and Graham's work suggests that there are interesting gender by ethnicity interactions with respect to children's valuing of achievement, using their nomination measure described earlier. African American, Caucasian, and Latino girls nominate high achieving girls as whom they wanted to be like. This also was true for Caucasian boys, but not for African American and Latino boys, particularly after students entered middle school. There are many other interesting questions that await research. These include whether relations of expectancies, values, performance, and choice are similar in different ethnic groups. Another interesting question is whether the developmental declines in expectancies and values found in the Eccles and Wigfield work also occur in other ethnic groups.

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Note

1. In recent writings Guthrie and his colleagues have re-named some of these motivational practices and added others, in an effort to generalize them to subject areas other than science and to make them more accessible to teachers (see Guthrie & Coddington, this volume; Guthrie, McRae, & Klaua, 2007). *Relevance* involves practices designed to relate instructional content to students' experience and background knowledge, through the use of hands-on activities and interesting texts. *Choices* are teachers' ways of supporting students' autonomy for their learning. *Success* involves practices that ensure that students are able to master meaningful classroom tasks in ways that enhance their self-efficacy and expectancies for success. *Collaboration* is opportunity to interact with other students around

learning, and *thematic units* means presenting the content of reading and other instructional activities in organized and conceptually connected ways, rather than in piecemeal fashion.

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