From Expectancy-Value theory to Situated Expectancy-Value Theory: A Developmental, Social

Cognitive, and Sociocultural Perspective on Motivation

Jacquelynne S. Eccles

University of California, Irvine

Australian Catholic University

Allan Wigfield

University of Maryland

Author Note

Correspondence should be addressed to Jacquelynne S. Eccles, School of Education, University of California, Irvine, Irvine CA 92697. E-mail: jseccles@uci.edu

Abstract

Eccles and colleagues' expectancy-value theory of achievement choice has guided much
research over the last 40+ years. In this article, we discuss five "macro" level issues concerning
the theory. Our broad purposes in taking this approach are to clarify some issues regarding the
current status of the theory, make suggestions for next steps for research based in the theory, and
justify our decision to call the theory Situated Expectancy-Value Theory (SEVT). First, we note
how visual representations of the model make it appear static, linear, and monolithic, something
that was not intended from its inception. Second, we discuss definitions of the major
psychological constructs in the model, focusing on our and others' elaboration of the task value
component, particularly the "cost" component. In this section we also discuss research on the
development of expectancies and values. Third, we discuss the often-neglected middle part of the
model focused on how individuals understand and interpret their own performance as well as the
many messages they receive from different socializers regarding their activity participation and
performance. In the fourth section we discuss the situative and culturally-focused aspects of the
model, stressing the impact of the situation and cultural background on children's developing
expectancy and value hierarchies. The fifth issue (one that we mention in several of the previous
sections) concerns the importance of understanding the development of individuals' hierarchies
of expectancies of success and subjective task values and how they relate to performance, choice,
and engagement.

From Expectancy-Value Theory to Situated Expectancy Value-Theory: A

Developmental, Social Cognitive, and Sociocultural Perspective on Motivation

The Eccles-Parsons at al. (1983) expectancy value model of achievement-related

choices, persistence and performance (now labeled SEVT for Situated Expectancy Value

Theory) was originally designed to elaborate and extend the classic expectancy-value

models that were prominent in several social sciences fields. Our broad goal was to

update this quite general theoretical framework with ideas from social cognition,

developmental sciences, and sociocultural perspectives (see Figure 1 for the most recent

version). In this article, we discuss and clarify the following five aspects of the SEVT

model (see Wigfield & Eccles, 2020, for discussion of other issues concerning SEVT).

First, the model displayed in Figure 1 is intended to be a broad theoretical

framework that can be used to guide comprehensive programs of research on the both the

long-term ontogeny of the beliefs and memories underlying individuals' motivated

achievement-related choices and the more proximal psychological processes that operate

over short time frames. Creating such a general model necessitates both a global and

more proximal approach both in its visual presentation and discussions of it.

Second, we discuss in most detail the right side of the model that is focused on the

more proximal social cognitive aspects of individual decision making at any one point in

time and over accumulating time. This part of the model is the most similar to traditional

expectancy-value models. Our major contributions to those models here have been the

elaboration of: 1) the constructs and processes that underlie both within- and between-

persons' differentiated task valuing and expectancies for success; and 2) the importance of social cognitive concepts derived from motivation theory and self-theories that explain individual differences in decision-making outcomes. In addition, because we developed the model to understand both within- and between-individual achievement-related choices, we have stressed the hierarchical nature of the beliefs on the right side of the model across the various options being considered by the actor. Finally, we have done longitudinal studies designed to both describe the developmental trajectories associated with these beliefs over childhood and adolescence and then to link them to both experiences and subsequent motivated choices.

Third, we elaborate on our thinking about the middle portion of the model that reflects the developmental processes Eccles-Parsons et al. (1983) hypothesized to mediate between individuals' experiences and the formation, development, and solidification of their self-concepts, memories, task perceptions, and identities, which, in turn, influence hierarchies of individual expectancies for success (ESs) and subjective task values (STVs) across the options being considered. In this section, we focus on the perception of others and experiences and interpretation of experience as key cognitive processes, again drawing on a social cognitive perspective grounded in social cognitive theory (Bandua,1977, Schunk & DeBenedetto, this issue), attribution theory (Weiner, 1985; Graham, this issue), and self-theories (e.g., Harter, 2015; Oyserman, 2014).

Fourth, we shift to the left side of the model focused more on the world in which individuals mature, their own relatively more stable characteristics, and their own history of experiences that we hypothesize lay the social and experiential background for the

ontogeny of within- and between-person differences in the cognitive, affective, and behavioral components of rest of the model. Here we ground our model and empirical work in individuals' developmental histories, the socio-cultural beliefs and values that influence individuals as they develop from birth forward, and the situations in which they find themselves. Because of the importance of these influences and the ones noted next we decided it is appropriate and timely to add an S to the EVT acronym for the model.

Fifth, building on the previous point we believe all of the processes underlying the SEVT model occur over time and are very much influenced by the immediate situation in which each decision is taking place. We assume that the momentarily ascendant ASCs and various task and personal values, goals, and identity fragments depend on the specific current situation in which both conscious and non-conscious choices are being made. Further, we also assume that the range of options being considered in any given choice situation is limited by prior experience and by the cultural values, norms, and characteristics that surround individuals as they mature and move through time and space. That is, SEVT is both situationally specific and culturally bound.

As we discuss these five issues we highlight topics and areas that we believe are the most important ones to pursue in the next decade of research based in the model.

Building and Representing a Comprehensive Model

Due to its representation in two-dimensional space, the model as depicted in Figure 1 looks static and monolithic. This was not our intent. Instead, our goal was to set out a roadmap seen from a mid-level perspective to guide our and others' subsequent research efforts. To be useful, we needed a map that was both parsimonious and inclusive

of key processes and constructs at multiple levels and time frames of functioning, ranging

from the very macro and distal socio-historical-cultural level represented by the "Cultural

Milieu" box, to the more proximal but still longer term socialization experiences

represented by the "Socialization" box, to the quite micro cognitive levels represented by

various social cognitive boxes such as the "Interpretation of Experience" or the

"Affective Memory" boxes, to the even more immediate cognitive processes and

constructs linked to moment-to-moment decision making.

In developing the model, we (Eccles, 1984; Eccles- Parsons et al., 1983) were

guided by two meta organizing themes: 1) to be integrative across theories and empirical

findings at multiple levels of functioning; and 2) to emphasize strength-based adaptive

systems models of differences rather than deficit models of differences.   Regarding the

first theme,, the model includes constructs from attribution theory, personality theory,

family socialization theories, and identity theories, to name a few we included. For the

second, we focused initially on the reasons why women made the educational choices

they made rather than the reasons they didn't make the same choices as men, in this case

choosing majors and careers in the social and medical sciences rather than the more male

types STEM majors and careers like engineering and physics. In addition, the explicit

focus on gender and other group differences in research on the model, means diversity

has been central from the start. We return to this point later.

We designed the model so that each box represented a general category or level of

constructs. The specific examples listed within each box were not meant to be an

exhaustive list. Similarly, we did not and do not currently assume that each will be

activated equally in any given instance or over time. Thus, for example, we do not believe that the four constructs listed in the STV box will be weighted equally in the mental calculations associated with emergence of the latent construct we labeled STV at any specific point in time or over time. We also believe that the relative weights of each potential influence are impacted by developmental processes, situational processes, individual differences, and individual by context processes. We articulated some of these ideas in our work on Stage Environment Fit in which we suggested that salience of particular individual needs would vary across development, making particular aspects of the social context (such as the school environment they experience) more or less impactful on individuals' motivation and engagement at various ages (see Eccles et al, 1993; Eccles & Midgley, 1989). This theme is elaborated on in Nolen's commentary (Nolen, this issue).

The arrows represent hypothesized processes and links that play out over time as well as within smaller units of time when specific task choices are being made. In general, we hypothesized that influence flows from left to right in the model. But, as indicated by the dashed arrow from the far right to the far left, we stressed the iterative nature of our model over time: Today's choices and performances become tomorrow's past experience. Thus, for example, we predicted that performance would both be influenced by and influence subsequent academic self-concepts (ASCs), ESs, and STVs- a hypothesis now widely confirmed by our own work and that of others (e. g., Meece, Wigfield, & Eccles, 1990; Gaspard, Lauermann, Rose, Wigfield, & Eccles, in press; Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2005).

Finally, we believe that various sections of the model can be expanded just as a map can be enlarged and elaborated as various parts of the map come into focus. For example, the box on interpretative processes could be expanded into both causal attribution processes, social comparisons, and across domain and across time comparisons – themes that have been taken up by several other motivational psychologists (e.g., Möller & Marsh, 2013). The socialization processes boxes also could be greatly expanded. Figure 2 illustrates our more expansive as well as focused look at the parent socialization processes grossly represented in the boxes in the far left column. We have posited many aspects of the school environment that could be represented in the model more fully as well. Nolen (this issue) commented that all the theoretical models represented in the special issue remain "theories about the impact of variables on variables". We think the school environment characteristics and processes and the parent socialization processes are much broader and richer than "variables", so disagree with this comment with respect to SEVT. Again we believe one of the challenges for us is the two dimensional representation of the model and its constituents.

The SEVT Perspective on Achievement-related Decision Making:

From Momentary Task Choice to Life-defining Choices such as Career Choice

Eccles-Parsons et al. (1983) posited that individuals' expectancies for success (ESs) and subjective task values (STVs) are the most proximal psychological determinants of task and activity choice, performance, and engagement in the chosen activities. We discuss each of these constructs in the next subsections; devoting substantial space to them because of the attention they are receiving in the literature.

Expectancies and Domain Specific Self-concepts

Based in the classic work of Tolman (1932), Atkinson (1964), and Bandura (1977), we defined expectancies for success (ESs) as individuals' beliefs about how well they will do on an upcoming task; in his discussion of self-efficacy Bandura called such beliefs personal efficacy (see Wigfield & Eccles, 2000, for discussion of similarities and differences between ESs in our model and self-efficacy in Bandura's). We distinguished conceptually between ESs and individuals' more stable self-beliefs about their current beliefs about their ability or academic self-concepts (ASC) for two reasons: 1) We wanted to honor the distinction between more stable ASCs and quite task- and time-specific ESs, and 2) we recognized that task-specific ESs would dependent on both more general (but still domain specific) ASCs and perceptions of the difficulty of the specific tasks being considered. However in our original studies, we found that these three sets of beliefs (ASCs, ESs, perceptions of task difficulty) were very highly related to each other by middle childhood; indeed, the items measuring them loaded together in our factor analyses. (e.g. Eccles, Wigfield, Harold, & Blumenfeld, 1993; Eccles & Wigfield, 1995). We therefore decided that it was not advisable to enter them as separate constructs into regression based statistical analyses Thus, for both issues related to multicollinearity and parsimony, we began treating these constructs empirically as a single construct, which we labeled self-concept of domain specific ability.

However the decision to combine ASCs and ESs empirically was probably a mistake with regard to both theory and measure development. Clearly more nuanced measures of each should have been developed and such measures might have reduced the

multicollinearity problem. The same is true for perceptions of task difficulty; with further thinking and writing about these perceptions we perhaps could have differentiated them more from ESs and ASCs and as a result have a clearer sense of their interrelations and separate influences on outcomes. Second, combining them into a single construct lead to the reduced attention to the determinants and consequences of perceptions of task difficulty as both an assessment of the difficult of the task for the person in particular and the stereotypes about the more general relative difficulty of various tasks for various individuals. These understandings likely become very important to individuals' assessments of the potential costs that may be incurred by selecting one task over another. Third, combining them into a single construct reduced attention to how these three constructs might develop in relations to each other over time.   Finally, it is likely that each of these constructs relates to individuals' understandings of the self-regulated learning demands needed to complete various tasks; thus they potentially link differentially to action at various points over the skill acquisition process.

Both Anderman (this issue) and Hattie, Hodus, and Kang (this issue) discussed the overlap of constructs having to do with ability beliefs in the different theories included in this special issue: self-efficacy in social cognitive theory, expectancies for success and self-concept of ability in SEVT, the need for competence in SDT. In our article for the *Contemporary Educational Psychology* 2000 special issue on motivation we (Wigfield & Eccles, 2000) discussed how the definitions of the constructs are distinct; Bandura (1997) and Schunk and colleagues (e.g., Schunk & Pajares, 2009; Schunk & DeBenedetto, 2016) have done so as well. Despite these definitional distinctions, the

empirical work done on this issue shows strong and almost complete overlap of constructs like self-concept of ability and self-efficacy, at least as they are currently measured (e.g., Bong & Skaalvik, 2003; Marsh et al. (2019). What does this mean for Anderman's query about whether all these constructs and even all these theories are helpful or distracting? As we note in the previous paragraph and discuss more later, the contributions of each of these constructs need to be more fully conceptualized and then measured much more precisely. We agree that it is time to step back and think hard about our core constructs and then work towards a more integrated theoretical lens for each of the processes we are trying to understand. But even more importantly, we need to rethink the situated cognitive and social processes underlying motivated behaviors both in the moment and over time.

Elaboration of the Task Value Construct

Atkinson (1957) included incentive value in his original expectancy-value achievement motivation model but defined it as the inverse of individuals' expectancies for success, thereby providing a quite constrained view of task value (see Eccles-Parsons et al., 1983; Wigfield & Eccles, 1992 for discussion of the ramifications of defining value in this way). In Eccles-Parsons et al. (1983), we extensively elaborated the task value construct. First, we argued that task values are subjective, meaning that the same task can be valued quite differently by different individuals and tasks with equivalent levels of difficulty can be valued quite differently by any one person. Eccles (1984) then proposed that the overall value of a given task would be composed at least of four main person-task characteristics/constructs: - intrinsic value, attainment value, utility value, and cost (see

Wigfield and Eccles (2020), and Wigfield, Rosenzweig and Eccles, 2017 for further discussion of STV).

  Intrinsic STV. We conceptualized intrinsic value (which we sometimes have called interest value) as the anticipated enjoyment one expects to gain from doing the task for purposes of making choices and as the enjoyment one gets when doing the task. This component is similar in certain respects to the concepts of interest and intrinsic motivation (see Hidi & Renninger, 2006; Ryan & Deci, 2016), but as we have stated elsewhere (e.g., Wigfield, Tonks, & Klauda, 2016) these constructs come from different theoretical traditions and so are defined and conceptualized differently. Eccles (2005) discussed the similarities and distinctions between intrinsic value, intrinsic motivation as defined by Ryan and Deci, and both situational and personal interest as defined by researchers such as Hidi and Renninger. For instance, she said that intrinsic motivation is more about "the origin of the decision to engage in the activity than with the source of the activity's value " (p. 112). She also connected intrinsic value to what Csikszenthmihalyi calls "flow" (Csikszenthmihalyi, 1997). When children place high intrinsic value on an activity they often become deeply engaged in it and can persist at it for a long time.

  However, future work is needed to develop this construct more fully, particularly in light of the current work going on in interest theory. For instance, Hidi and Renninger (2006) proposed a developmental model of interest development, proposing that environmental events can generate immediate situational interest, which can develop into longer-term interest. Because of its focus on tasks, our definition of intrinsic value is most similar to situational interest. Personal interest includes "stored knowledge" about a

topic so goes beyond valuing of it Methodologically, most items measuring intrinsic value in our work and the work of others focus on liking, enjoyment, and interest in the activity. Personal interests (and measures of them) include level and depth of engagement in the activity, how much individuals want to do the activity, and engaging in it independently (thus tying this construct to intrinsic motivation).

Like Hidi and Renninger (2006), we believe over time situational interests can be elaborated and internalized. We tried to capture this development process with the concepts of attainment value and utility value. But we still know little about the developmental processes underlying the emergence of either within or between-person differences in interest or intrinsic value. Does it primarily arise out of situational interest as Hidi and Renninger (2006) discuss, or perhaps does it sometimes arise from a particularly good fit between a more stable characteristic of the actor and some aspect of their current experiences and contexts? We know even less about how *subjective* intrinsic value gets attached to particular activities rather than other activities.

Utility STV. We conceptualize utility value or usefulness in terms of how well a particular task fits into an individual's present or future plans, for instance, taking a math class to fulfill a requirement for a science degree or making one's parents proud. In certain respects, utility value is related to the idea of extrinsic motivation, because when the STV of a task is primarily linked to its utility value, the activity is a means to an end rather than an end in itself (see Ryan & Deci, 2016). However, the activity also can reflect important goals that the person has come to hold very 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 attainment value. In this sense, the distinctions between intrinsic value, attainment value and utility value are quite subtle, depending on how central the goals are to one's sense of identity or most core values. This may be why they correlate highly in various studies. Ryan and Deci (2000, this issue) have articulated a similar linking in their discussions of the continuum from extrinsic motivational orientations to intrinsic orientations.

Clearly, more work is needed on this hypothesized set of linkages. Currently, new research on utility value has been focused on identifying the various types of utility value any specific activity might have, as well as developing measures for these various sources of utility value (e.g., Gaspard, Häfner, et al., 2017). Such differentiation and elaboration of each of the subcomponents of STV is very important for the field. But, even more importantly, we need more theorizing and studying the social, developmental, and psychological factors that influence which particular aspects of utility are weighted most heavily in any given short-term achievement-related choice situation as well as for activity choices that extend over varying amounts of time (e.g., deciding to one's homework tonight or deciding what to major in college).

Attainment STV. Because SEVT originally grew out of our theorizing about gender differences in the likelihood of studying math and science, we focused on belief systems likely to be relevant to gender-role identity. This led us to include attainment value as one key aspect of subjective task value. In Eccles-Parsons et al. (1983), we defined attainment value as the relative personal/identity-based importance attached by individuals to engage in various tasks or activities. We posited that the relative within-

person attainment value derives from the assumed fit of perceived task characteristics with the individual's core self-schema, social and personal identities, and ought selves; that is, the extent to which tasks do or not allow persons to manifest those behaviors that they view as central to their own core sense of themselves or allow them to express or confirm important aspects of their central selves. For example, individuals with very central and strong traditional gender-role identities will place much higher attainment value on tasks they believe to be consistent with their gender role identity than other tasks or activities; in fact they will likely attach quite negative attainment value to tasks that they think are contrary to their gender-role identity. The same would hold true for tasks or activities perceived to be core to many other social identities.

Unfortunately, the connections of attainment value to identity discussed by Eccles (2009) have not been well studied, in part because neither we nor others have developed the measures to do so (for one exception, see Perez, Cromley, & Kaplan, 2014; they used a composite measure of STV, however). Instead, attainment value has been measured in terms of perceived personal importance with no attention to the origins of the differential importance of various tasks or ties to identity. This omission needs to be corrected with new measures and new studies. Relevant related work includes that being done by Oyserman and her colleagues (Oyserman, 2014), by Higgins and his colleagues (e.g., Higgins, Franks, Pavarini, Sehnert, & Manley, 2013), and by the sociocultural scholars working on identity formation and enactment (e.g., Clarke, 2008; Penuel & Wertsch, 1995).

Perceived cost: Our original discussion and current view. Eccles-Parsons et al. (1983) argued that every activity/ task has costs as well as benefits and that individuals will avoid tasks that cost too much relative to their benefits, particularly when compared to alternative tasks with a higher benefit to cost ratio. Initially, they suggested three different types of costs: 1) Effort cost – the perception of how much effort would need to be exerted to complete a task and whether it is worth doing so; 2) Opportunity cost- the extent to which doing one task takes away from one's ability or time to do other valued tasks; and 3) Emotional cost -the emotional or psychological costs of pursuing the task, particularly anticipated anxiety and the emotional and social costs of failure. We (e.g., Eccles, 1984, Eccles, 2005; Wigfield, 1994; Wigfield & Eccles, 1992; see also Wigfield & Eccles, 2020) included cost in the STV box in the model (see Figure 1) because we conceptualized subjective task value as a net value derived from both the relative benefits and costs of the various available task or activity options.

Until recently, cost has been operationalized less fully and thus studied less comprehensively than intrinsic and utility value, in part because it is a complex multidimensional construct; this omission is now being addressed. Researchers have both proposed new dimensions of cost and developed new measures of it (e.g., Flake, Barron, Hulleman, McCoach, & Welsh, 2015; Gaspard, Dicke, et al., 2015; Gaspard, Häfner, et al., 2017; Perez et al., 2014; Watt, Bucich, & Dacosta, 2019; see Wigfield & Eccles, 2020, for further discussion of this work and several of the new measures). Both Gaspard et al. and Watt et al. showed that cost items factor separately from items measuring intrinsic, attainment, and utility values. Cost also separately predicts or relates

to outcomes such as grades, intentions to leave STEM majors, and ASCs (Flake et al., 2015; Perez et al, 2014; Watt et al., 2019). These (and other) results led Barron and Hulleman (2015) to propose that EVT models be labeled Expectancy-Value-*Cost* Models.

However, as discussed in Wigfield and Eccles (2020), the new measures of cost sometimes use the same labels to describe very different sets of items. For instance, Perez et al. (2014) and Flake et al. (2015) both use the label "psychological cost" but the kinds of costs the include in their items are quite different from each other. Further, at least some of the items on the new cost scales also appear to capture the "negative" pole of ability beliefs (e.g., "this class is too demanding" and other aspects of values (e.g., "I can't spend as much doing the other things that I would like…"). Because each of these four components of STV can, in principle, vary from very low, even negative, to very highly positive across the relevant task options in any one moment they can either increase or decrease an individual's motivation to engage in any particular achievement-related task or activity as well the relative STV of all of the available task or activity options being considered by the individual. Unfortunately, the possible range of each of these four components is often ignored in the recent debate about whether the construct of STV should be broken into a positive set (referred to as values) and a negative set (referred to as cost; see Barron & Hulleman, 2015). This may be in part because most measures use positively numbered 1 to 7 Likert scales rather than also including negative numbers to indicate negative valence. Only a few researchers have developed items to measure positive and negative value; one example is Wigfield, Guthrie, and colleagues '

(e. g., Wigfield, Cambria, & Ho, 2012) reading motivation scales. They developed items measuring both valuing and devaluing of reading and show that each predict reading outcomes.

More broadly, we have kept these four components together to be consistent with the original conceptualization of expectancy – value models of achievement motivation. This decision received empirical support in a recently-published article (Article Authors, in press). They tested a number of models of the structure of task value in a sample of college students enrolled in an anatomy and physiology class. The models assessed both general and specific aspects of variance in task value, and also its hierarchical structure. The researchers tested two kinds or types of models: One type was a series of the "traditional" higher-order CFA modeling approach and the second was a bifactor approach where the authors used the exploratory structural equation (ESEM) models to test the bifactor models. The authors stated that this approach, "offers an alternative, more flexible, analytic approach for teasing apart generality and specificity in data that overcomes the restrictions of higher-order models" (p. x); in particular, the proportionality restrictions necessary to run the higher-order CFA models.

Authors (in press) stated further that "testing bifactor models of the structure of task value would allow for the types of investigations Barron and Hulleman (2015) cite as rationale for moving to an EVCT framework, but these investigations could be done from within Eccles and colleagues' EVT framework" (p. x). That is, the bifactor models assess whether there is a general task value factor that is distinct from the specific aspects of task value, and also whether there are unique relations of the specific task value

components to outcomes along with relations of general task value to the same outcomes. The best fitting model in their analyses was a bifactor model that included a general task value factor and six specific components of it, which included effort, opportunity, and psychological cost components, The authors thus concluded that cost can be fully captured within Eccles' and colleagues' (1983) original expectancy-value framework.

As noted above, Barron and Hulleman (2015) and others base their suggestion to add the C to the label in large part because cost factors separately from intrinsic, attainment, and utility items. But as just noted the latter also factor separately (Eccles & Wigfield, 1995); does that mean they each deserve their own initial in the model's name? We noted earlier that many aspects of the model could and should be expanded. For example, the attainment value construct and its impact on subjective task value needs to be expanded. This is also true for the utility value and intrinsic value components of STV. Should we change the name of the model to the expectancy, value, cost, and identity model? What if we expand the cultural influence box? Would that require renaming the model again to the culturally grounded expectancy, value, identity, cost model? And so on. As just discussed, one of the most recent methodologically sophisticated studies published to date showed that cost can be captured within the original EVT framework. Therefore we see no reason to "add the C to EVT"; we think the more parsimonious solution is to keep the model's name as simple as possible but distinct enough to bring to mind the full SEVT model.

Rather than adding the C we believe there are several important future research questions. First, we have not specified exactly how the various components would aggregate to form either the STV of individual achievement-related task or the relative STVs across several different task or activity options available to an individual at one time or over time. Instead, we assume the weighting of each of these major components likely varies across developmental time and situations. Indeed, we think that how individuals engage in the relative weighting of the STV components along with their ability-expectancy beliefs at different points in development and in different situations is a much more interesting issue than whether cost deserves its own denotation in the name.

Second, we also think researchers should focus on the social, contextual, and psychological factors that influence which specific aspects of each STV components are weighted most heavily as individuals assess the relative STV of various short- and long-term activity options. We predict that both across time within-person and more immediate between-person differences in the STV will be influenced by personal characteristics and immediate context characteristics linked to the salience of various aspects of the options being considered, the type of choice being made (immediate engagement decisions versus like defining long term choice, cultural beliefs, and the social and personal resources individuals can bring to the various choice options. We propose that the subjective attainment value of various options will be weighted quite strongly when deciding which life-defining activities (like careers or avocations) to pursue. However, having made a choice (either explicitly or implicitly) does not guarantee enactment and success in enactment. Thus the metacognitive, self-regulatory,

personality/psychological characteristics, and skills at switching strategies if necessary must also be considered; in other words, all aspects of successful goal pursuit should be included in future models.

What is the Support for the Right Side of the SEVT Model?

By and large, evidence supports the predictions inherent in the right side of the model regarding how expectancies and values predict performance and choice (see Wigfield & Eccles, 2020, and Wigfield et al., 2016 for review). Interestingly, in some studies domain specific STVs were more predictive of task choices after controlling for prior achievement whereas domain-specific ASC and ESs were more predictive of changes in subsequent performance (e.g., Meece et al., 1990). Further, these relations extend over time; for example, Durik et al. (2006) found that the importance children gave to reading in fourth grade predicted the number of English classes they took in high school (see also Simpkins et al., 2006). More recently Watt and her colleagues (e.g. Watt et al., 2017; Watt et al. 2012) found that gender moderated these relations in samples of Australian and North American students. For instance, importance value was key for Australian and Canadian girls, but not boys, choosing mathematical careers (Watt et al., 2012); and Australian and U.S. boys' interest in math predicted their subsequent STEM career aspirations most strongly, whereas for females it was their previous achievement and ACS (Watt et al., 2017).

Researchers also have examined the extent to which individuals' ESs and STVs interact to influence their achievement and have shown that these interactions add small but reliable increments in predictive validity (e.g., Nagengast et al. 2011; Trautwein et

al., 2012). Perez et al. (2019) studied (in college biology students) whether perceived cost mediated the relations observed between students' biology ESs and performance in biology and found that effort cost was the strongest moderator. The relations of expectancies for success to achievement were stronger for students with high ESs and low effort cost compared to those with high ESs but also high effort cost.   Song and Chung (2020) found in their large-scale study utilizing data from the Korean Educational Longitudinal study that expectancy x value interactions on 9th grade students achievement (measured by performance on the standardized tests used in Korea were not significant. They did find that the interactions were significant on some of the other variables they measured, including test anxiety and use of rehearsal cognitive strategies. It is unclear if the divergent results on achievement in this study occurred because of the type of achievement measure used, or because the study was done in Korea, where there is such a strong emphasis on achievement (see Song & Chung, for further discussion).

Others are using person-centered data analytic approaches to investigate these relations and finding both that meaningful patterns in individuals' expectancies and values can be identified and that these patterns relate to achievement choices (e.g., Conley, 2012; Wang, Eccles & Kelly, 2013; see Wigfield & Eccles, 2020, for review). We mention three examples here. Using growth mixture modeling Musu-Gillette, Wigfield, Harring, & Eccles (2015) identified different trajectories in students' ASCs and STVs across the elementary school years and found that they predicted choice of college major. Taking these results further, Gaspard et al. (in press) examined trajectories of students' ASCs and STVs in both math and English across the elementary and secondary

school years and showed that they predicted math course taking in high school, career

aspirations in college, and occupation choice. Watt et al. (2019) identified three different

profiles in Australian grade 10 students' expectancies, values, and perceived cost for

STEM subject areas. Positively Engaged students had higher math and science grades,

Struggling Ambitious were next, followed by the Disengaged students. The profiles also

differed on various achievement striving, career aspiration and well-being measures.

As noted earlier, the differentiation of individuals' domain specific self-concepts

and subjective valuing of various tasks and activities will lead to hierarchies of ASCs,

ESs, and STVs. Eccles (2005) posited that at the individual level, it is the relative

placement of various tasks in an individual's hierarchy of STVs and ASCs that are the

important predictors of their task and activity choices, rather than the valuing and success

expectancies of the activity itself. That is, people should prefer tasks that are relatively

higher in their own hierarchy over tasks lower in their hierarchy. These hierarchies likely

are formed by factors ranging from individuals' success or failure on different tasks,

messages from parents and teachers about what are important things to do, and the

appropriateness of doing different tasks depending on individuals' biological and social

group memberships (see Eccles, Wigfield, & Schiefele, 1998, and Wigfield et al., 2017

for further discussion). Studying these hierarchies would involve using different analysis

strategies and/or different ways of measuring ASCs, ESs, and STVs than are currently

done. Examples of such work are described next.

Work focused more on understanding within-individual differences over time is

showing the importance of such within-individual hierarchies of STVs and ASCs across

domains in predicting activity choices. As is predicted in both SEVT and Marsh's (1986) I/E model, individuals who value math more than English are more likely to take advanced math courses and a science college major than people who values both math and English equally even though they both groups value math equally highly and do equivalently well in math. Gaspard et al.'s (in press) work showed that long-term trajectories in these beliefs and values predicted long-term outcomes. More work is needed to build on these interesting findings. In our scale we have items assessing children's judgments about how good they are in one domain relative to others; such items could be expanded. A rank-ordering method also could be used. We believe these kinds of items would be important additions to the current well-validated measures of STVs.

Development of Children's Expectancies and Subjective Task Values

There are several critical findings with respect to the development of students' STVs and domain-specific ASCs (see Wigfield et al., 2016; Wigfield & Eccles, 2020 for further discussion). The first is that even first graders make domain specific distinctions in both ASCs and STVs and within domain distinctions between ASC and STV (Eccles et al., 1993), suggesting early differentiation in both these beliefs. Eccles and Wigfield (1995) showed that the attainment, intrinsic, and utility components of task value formed separate but highly related factors at least by the late elementary school years. As noted earlier Gaspard, Dicke et al. (2015), Gaspard, Häfner et al. (2017) and Watt et al. (2019) found that the multiple dimensions of expectancies, values and cost that they measured factored separately.

Most of what we know about change over time in children's ASCs and STVs come from studies in several countries of age differences in their mean level. Eccles and Wigfield's longitudinal Childhood and Beyond study (CAB) examined change in children's ASCs and STVs across the k – 12 school years. They initially reported a normative pattern of decline across different school subjects across the elementary school years and into high school years (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Wigfield et al., 1997; see Wigfield et al., 2015, for review). Researchers in other countries also reported declines and/or age differences in children's ASCs and STVs (e.g., Gaspard et al., 2015; Watt, 2004).

More recently, researchers analyzing the CAB data with growth mixture modeling analyses have shown that there are a variety of patterns of change in children's STVs and expectancy beliefs (e.g., Archambault, Eccles, & Vida, 2010; Gaspard et al., in press) Musu-Gillette, et al. 2015), including increases for some children (see Eccles, 2014). Finally, cultural differences have been found in these patterns of change. For example, Wang and Pomerantz (2009) found declines in early adolescent American students' but not in Chinese students' beliefs.

What about the weighting or salience of these separate various STV components and SCAs? Age and maturation influence the weighting of the different components of STV, as well as when the cognitive processes underlying each of these components emerge and then mature. However, culturally prescribed social roles such as gender roles emerge quite early on, suggesting that some aspects of attainment STV might emerge quite early in life. For instance, many children strongly prefer toys, clothes and activities

consistent with their culture's gender role norms for their gender by three years of age (Ruble, Martin, & Berenbaum, 2006).

Children's ASCs and STVs likely become much more sophisticated, conscious, and stable as children mature and develop more conscious and reasoned personal identities, goals, and worldviews. (see also Oyserman, 2014) We also suggest that individuals' relative weighting of the various components of STV and the impact of situational demands and characteristics on them will increase with increasing social and cognitive maturity. These suggestions should be explored in future research on STVs.

With respect to the patterns of change in these beliefs and values just discussed, an interesting question is whether children should maintain high SCAs and STVs across all skill areas. Scholarship focused on the advantages of growth over fixed mindsets (e.g., Dweck, 2016) could be interpreted as suggesting that maintaining high expectancies is optimal for development, at least regarding the expectancy that one can improve with effort. In contrast, scholarship focused on personal identity formation, on developing differentiated self-knowledge, and on optimal decision making regarding more focused skill perfection could be interpreted as suggesting that developing a differentiated view of one's interests and potential competencies is also an adaptive strategy (Harter, 2015). Both of these perspectives likely hold kernels of truth. Future research should focus on the benefits and costs of each strategy at different points along the life span and for different contexts. For example, as long as we force all children to master the same set of intellectual skills, it is probably most adaptive for children and their teachers to believe quite strongly that people can improve their ability levels with well-targeted effort and

good instruction. Otherwise, too many children may give up and experience high levels of continued failure. Essentially this is the perspective inherent in mastery orientation at both the individual and instructional level (see Urdan & Kaplan, this issue). In contrast, once choice becomes available for individuals, then developing a differentiated view of one's competencies might be more adaptive because it can facilitate more effective goal planning, given the constraints on people's time, preferences, and resources.

Intervening to Enhance Individuals' Expectancies and Subjective Task Values

Over the last 10 years researchers have conducted numerous interventions to enhance individuals' STVs, beginning with Hulleman and Harackiewicz's (2009) study showing that a utility value intervention enhanced high school students' interest in science and also their performance. Harackiewicz and colleagues subsequently have shown that utility value interventions positively influence other motivational beliefs and values, choices to continue taking courses in the area of the intervention, and grades, both in the short term and long term STVs; they have done these interventions with the students themselves and also their parents (e.g., Harackiewicz, Rozek, Hulleman, & Hyde, 2012; see Harackiewicz & Priniski, 2018; Rosenzweig & Wigfield, 2016; Wigfield et al., 2017 reviews). Gaspard and colleagues (e.g., Gaspard, Dicke et al., 2017) have done successful utility value interventions focused on increasing the utility value of math for German high school students; interestingly, however, results of a recent replication study were not quite as strong (Gaspard et al., 2019).

We mention two findings from this body of work that we believe are especially important. Harackiewicz, Canning, Tibbets, Priniski, and Hyde (2016) implemented a

utility value intervention in different groups of college students, including both first-generation and underrepresented minority students. Intervention group students' grades improved more than did the control group students. Most importantly, the intervention was particular successful in improving first generation-underrepresented students' performance, meaning that it reduced the achievement gap between these students and majority students. Thus these interventions may be particularly effective for groups who need them the most. Second, Harackiewicz and her colleagues have shown that these brief utility value interventions have both short (within a semester) and longer-term effects such subsequent course choice, academic major choice, and career aspirations in college, (e.g., Hecht et al., 2019; Rozek, Svoboda, Harackiewicz, Hulleman, & Hyde, 2017).

Hecht, Priniski, and Harackiewicz (2019) proposed several processes or mechanisms by which these long-term effects occur. Like Yeager and Walton (2011) and others they stated that recursive processes, or feedback loops where (for example) increased valuing of a course leads students to work harder in it, leading to further increases in the course's value, and so on, can lead to long-term effects. Others include: 1) nonrecursive processes where increases in task value promote positive change in other motivational beliefs such as ASCs or ESs, making the individual more likely to succeed in the class and take additional courses; 2) "trigger and channel" processes by which increased value for a subject area increases the degree to which students take advantage of existing opportunities to continue in that area (e. g, available classes in the subject, available majors); and 3) learning "habits of mind" that are conducive to succeeding in

different classes. They are just beginning to disentangle how these processes separately and jointly help us understand the long-term success of utility value interventions. One interesting aspect of this work to us was the choice to focus on utility value as the aspect of task value on which to intervene. Harackiewicz Tibbits, Canning, and Hyde (2014) posited that utility value is the most malleable of the task value components, and so most likely to change during interventions. Although this is possible, we believe other aspects of individuals' task values can be enhanced by interventions, so suggest researchers extend the utility value intervention work to other aspects of STVs.   In an important step in this direction, Rosenzweig, Wigfield, and Hulleman (2019) showed that an intervention designed to reduce college students' perceptions of the cost of physics was as effective as a utility value intervention in increasing the students' performance in physics. We also believe attainment value-based interventions should be developed. These could be designed to provide students with information on the link between potential associated job characteristics with the students' goals and identities. Another focus would be how STEM provide opportunities to help others and work/collaborate with people as ways of attracting women into STEM fields, as Harackiewicz et al. (2012) did in their intervention with parents.

Work grounded in academic mindset theory (see Yeager et al., 2019) has shown consistent evidence of the value of short interventions aimed at changing students' beliefs about the importance of effort in learning and the growth potential of the brain for students most at risk of academic failure. In one of the largest systematic intervention

studies in this set of studies, Yeager and his colleagues used an RCT design to assess the utility of a very well designed video intervention that included many aspects of positive motivation messages including those linked to a growth mindset belief set. This intervention reliably increased endorsement of a growth mindset for low achieving students as well as their performance. The effect, however, was quite small and the working ingredient in the video is not yet clear. Nonetheless, this study demonstrates the potential power of positive motivational messages to support academic success.

We close this section with two comments made by the commentators for this special issue regarding motivation intervention work. Anderman (this issue) asked two important questions with respect to motivation theory and interventions: Do we need all the theories, and are the theories' views compatible with educational policy and practice? Given the success of SEVT-based interventions and their continuing growth and expansion we believe the answer to the first question is that SEVT is very much needed. With respect to the second question we also believe work based in SEVT is quite relevant to current policy issues; the stage-environment fit work mentioned early is one clear example of that and has had implications for how middle schools are designed and structured. From our SEVT perspective we are in strong agreement with Ryan and Deci (this issue) that the foci on grades and high-stakes testing in educational policy and practice can be debilitating to student motivation. We believe it is critical for motivation researchers to engage more with policy makers on the relevance of the work on motivation to policy decisions, something that does not occur enough at the present time.

In discussing motivation interventions based in social cognitive approaches Nolen (this issue) commented that it is difficult to do so for several reasons. She stated that such interventions often do not take the broader meaning system of the school or school system into account. She also noted their focus on the individual rather than the "nested social or cultural contexts of motivation (p. X) likely limits their effectiveness, using brief motivation interventions like the ones we just discussed as examples of the "difficulty of moving from socio-cognitive theory to intervention (p. XX). By contrast, we believe the EVT based brief interventions have been a success story in the motivation field, illustrating how social cognitive theories can guide effective interventions. Like Nolen we also think that understanding the broader classroom and school contexts and working to change them as a way to increase students' motivation should be the focus of intervention work as well.

From Reality to Perceptions: Developmental Processes Mediating the Association of Experience with Children's Developing ASCs, ESs, and STVs

In the SEVT model, we also stressed the potential role of individuals' understanding of their experience on the development of the social cognitive beliefs populating the boxes on the right half of the model. However, until recently, these aspects of the model neither have received much research attention nor even been acknowledged as key components of our model. Interestingly, some recent intervention efforts have successfully increased academic performance and persistence by introducing new experiences into students' school and family settings, thus acknowledging the role of experience (Harackiewicz et al., 2012). But they often ignore the distinctions we make in

the boxes displayed in the middle and right side of the SEVT model. Given our limited space in this article, we mention just a few examples that illustrate the kind of research that remains to be done on these processes. We focus primarily on the "Interpretation of Experience" box because we believe that it is directly linked to the ontogeny of ASCs and lies at the base of at least two lines of current scholarship.

Since the mid-1950s, various scholars interested in social cognitive processes have focused on two important aspects of the ontogeny of ASCs: 1) the sources of information used in forming one's ASCs; and 2) the interpretive processes linking experience to the formation of ASCs and ESs. The scholarship by Marsh and his colleagues on The-Big-Fish-Little-Pond effects (Marsh, 1986), the general Internal/External Comparison effects, and the Dimensional Comparison theory (Möller & Marsh, 2013) are at the center of the first of these two lines of work. These scholars have clearly shown that both internal and social comparison processes (initially studied by Festinger, 1954) are key influences on emergence of both within- and between- person ASCs. We believe aspects of this line of work fit nicely with both the box labeled "Perceptions of Socializers" and the box labeled "Interpretation of Experience." The work of these scholars also suggests that social contextual characteristics in schools, families, and neighborhoods (such as the average performance levels of one's peers within one's school) influence the inferences individuals make about their relative levels of competence compared to others and across various domains. Thus, these characteristics need to be included in the cultural milieu box on the far left side of model. More work needs to be done integrating these lines of scholarship.

Rotter's (1954) notion of locus of control, Weiner's (1985) attribution theory, and Dweck's (2016) mindset theory lie at the center of the second of these lines of work. These theorists stress the role of interpretive processes in individuals' reaction to achievement-related experiences, which, in turn, are assumed to influence inferences drawn about one's competencies and successes or failures, as well as one's emotional reactions to and stored memories about previous achievement-related experiences. These theorists predict that attributing one's academic difficulty, for example, as indicative of stable aptitudinal deficiencies (e.g., lack of talent) will lead to giving up, disengagement, and continued failure. In contrast, attributing one's academic difficulties to insufficient effort will lead to enhanced engagement, continued effort, and improved performance. Furthermore, as mentioned earlier Dweck (2016) argues that general growth versus fixed ability mindsets underlie the differential likelihood of each of these attributional patterns dominating an individual's interpretation of his/her own academic difficulties.

We find the work in both of these areas very promising for both theoretical and practical reasons. First, they focus in on the role of social-cognitive information processing in a way that continues our original intent of expanding classical expectancy value theoretical frameworks to include current theoretical and empirical work in cognitive, social, and developmental psychology. Second, these kinds of interpretive processes are very powerful nodes for intervention efforts. However, despite the depth in which Dweck (2016) describes each mindset, we have some concerns about the notion that there are two overarching mindsets, growth or fixed; in our view this simplifies the complex social cognitive processes involved in forming beliefs about ability and task

value to too great an extent. We also think it is likely there are gradations in each rather than them being categorical, and that individuals' mindsets about different domains (e.g., math vs. English) likely vary as well. Research should connect more clearly the two lines of work just discussed.

What about information used and processes involved in the development of children's STVs? Gaspard et al. (2018) studied how dimensional comparison processes impacted children's developing STVs and found that that the relations between different aspects of STVs and performance generally are weaker, and relations among STVs across domain are stronger, than for ASCs, suggesting that children use other sources of information beyond performance when forming their STVs. Wigfield et al. (2016) discussed various sources of information children may use in forming their STVs. These include such things as shared beliefs about what is desirable in families and schools, perceptions of discrepancies between one's current/actual self and desired self, and reactions to positive and negative experiences one has during the course of development. With the exception of shared beliefs about what is desirable, the impact of these proposed sources of task value on the development of children's STVs has not been addressed. Shared belief about what is desirable has been studied in work on socialization, which we discuss in the next section.

The Socialization of Expectancies and Subjective Task Values

The boxes at the far left of the model focus on the role of social experiences in SEVT, and the child's own characteristics. Both the parent and school aspects of this part of the model have received extensive theoretical and empirical attention. In her 1993

Nebraska Symposium on Motivation chapter, Eccles elaborated the parent socialization aspect of the model and presented the expanded model illustrated in Figure 2. In their monograph, Simpkins, Fredricks, and Eccles (2015) provided the most comprehensive empirical test of this aspect of the SEVT model, documenting the associations of the kinds of opportunities parents provide their children (among other things) with developmental changes in their children's ASCs and STVs. They also reviewed the support from other family socialization studies for the hypotheses inherent in this figure. Furthermore, as noted above Harackiewicz et al. (2012) demonstrated experimentally that teaching parents about the value of STEM courses leads to increased likelihood of their daughters taking high school STEM classes. Thus, on the one hand, there is general support for the importance of the family socialization processes outlined in Figure 2. However, interesting domain specific differences emerged in Simpkins et al. suggesting that the strength of parental influences varies across skill-based areas depending on whether these skill areas are grounded in academics or in out of school settings over which parents have greater control. The situated nature of these processes needs much more work.

Eccles (1993) also laid out theoretical ideas regarding the role of schools in the SEVT. Our work related to school contexts has focused on identifying those classroom characteristics that facilitate students' confidence in their ability to master academic material and the STV they attach to their academic courses. Like self-determination theorists, we focused on those characteristics of classrooms that support feelings of competence, connectedness, and autonomy (e.g. Eccles, 2012; Wang & Eccles, 2013).

By and large, our results support the importance of these aspects of classrooms in supporting engagement, high ASC, and high academic STV (see Wigfield et al. 2015 for review).

In addition, in our work on stage-environment fit theory noted above, we focused on the extent to which systematic changes in students' motivational beliefs and engagement over years in school might be linked to systematic changes in the fit between classroom/school characteristics and the developing needs of the students themselves (Eccles, 1993; Eccles & Midgley (1989). A great deal of research based in this theory has been done, particularly as it relates to changes in school/classroom characteristics across major school transitions. By and large, the research supports the associations between changing experiences in schools/classrooms and both declines and increases in students' ASCs, ESs, and STV across the school years, at least in U. S. schools (see Eccles & Roeser, 2010; Wigfield, Cambria, & Eccles, 2012). This work influenced educational policy makers to recommend that traditional junior high schools be changed to middle schools that focus on early adolescence as a unique phase in development.

Much less work has been done on other social influences such as peers, media, and culture. We focus here on culture.

SEVT as Culturally Based and Situative

SEVT and Culture

As mentioned at the outset Eccles-Parsons and colleagues (1983) developed the model to explain a cultural phenomenon: Why girls and women were less likely to enroll in advanced classes in science and math, or pursue math and science college majors and

careers. The work focused on gender role identity (see Ruble et al., 2006) and other culturally grounded identities (Cross & Gore, 2012) provides a broadening of the body of research on the role of culture in the ontogeny of ASCs and STVs. Little of this work, however, has been focused on the pathways through which these culturally grounded beliefs systems get internalized into individuals' ASCs and STVs. Instead, there has been more work related to cultural and gender related differences in both current levels and change in individuals' competence beliefs (see Tonks et al., in press, for review).

Tonks et al. (2018) discussed how different aspects of culture and cultural background could be infused into the SEVT model. One thing would be to add different aspects of culture to the "Cultural Milieu" box; these could include very broad cultural characteristics such as individualism and collectivism, and more specific styles and processes of interactions between parents and children in different cultures. Tonks et al. also discussed how the meaning of a given construct in the model (e.g., ASCs) can differ, meaning the relations specified in the model could be quite different in different cultures.

Nagengast et al. (2011) looked at whether students' ASCs and enjoyment in science (representing intrinsic task value) predicted extracurricular activities and career aspirations in science among high school students from 57 countries. Both students' science ASCs and their enjoyment of science positively predicted career aspirations in all 57 countries and extracurricular science activities in all but one country. The researchers also found that the interaction of science ASC and enjoyment significantly, albeit weakly, predicted the outcome variables.

Safavian (2019) found links between Hispanic high school students' ESs and STVs to their math performance and participation in math courses over time, for both male and female students. Perceived cost was a negative predictor for both gender groups. These studies both provide strong support for our predictions in SEVT regarding relations of expectancies and values to performance and choice in many different cultures. A next step in this work is to investigate whether the processes behind these relations are similar in different countries.

The Situative Nature of SEVT

Situated views of motivation that emphasize the importance and (in some cases) the primacy of the situation's impact on individuals' in-the-moment motivation are increasingly prominent in the motivation field (e.g., Nolen, Horn, & Ward, 2015; see Nolen, this issue). In the EVT model we have always considered the situation's impact on children's developing motivation to be an important aspect of the model. As we have sought to make clear throughout this article, we believe all aspects of the model are situative, even if the model in Figure 1 does not fully capture that. In its most macro sense the model begins in the far left with a box devoted to the sociocultural and historical nature of life. Although we provide only a few examples of such constructs within that box, our goal was to stress the very foundational nature of the processes and forces associated with this level of analysis, forces that directly influence all aspects of a growing individual's life space, as well as each individual's interpretations of their experiences. It is important to note that these influences occur all throughout the model; that is, we do not view them as endogenous influences that only have impact at the outset.

Rather, they are infused in each box. Going down the left side of the model, we also stress the fact that proximal socializers (i.e., all of the proximally located individuals that make up each individual's lifetime and space) are directly influenced both by their sociocultural context and the characteristics of the focal individual. Thus, for example, we hypothesized that parents will respond to their children differently as the children become older and that these changing responses will be influenced by socioculturally derived notions of the age appropriateness of the specific goals they might have at any given age as well as the age appropriateness of the characteristics and behaviors of the focal child (Eccles, 1993; Simpkins et al., 2015; Wigfield et al., 2016). The same would be true for the sex of the focal child, the race of the focal child, the sexual identity of the child, etc. Furthermore, we assume that these processes accumulate over time to produce individuals who are uniquely positioned due to their own unique histories, memories, endowments and their quite specific location in time and space to deal with their set of behavioral options at any one point in time. Finally, we agree with Nolen's argument in this issue that context is a changing system that includes all of the participants. Thus, individuals both learn from and co-create contexts as they participant in them. However there has not been very much empirical work on this aspect of SEVT; more is needed. Most importantly, new methods of both study and data analyses need to be developed to capture the situated nature and complex, self-organizing systems that underlie SEVT.

Turning to the right side of the model in which specific decisions are being made at one point in time, again we assume these decisions and the subsequent enactments are very situated. Each person will arrive at each decision point with their own set of

available options that operate either in the moment or over longer time frames. They will only be familiar with a very limited subset of all possible behaviors and options. They will only have a small subset of the skills and resources that could be drawn on in enacting whatever decision they make. Both their own view and the view of those around them of what is going on and the available options will be limited. As a result, both their own hierarchy of ASCs and STVs and the hierarchies of those around them will be limited and very much tied to their current "situation".

Researchers are beginning to investigate situated expectancies and values and how they relate to broader or more general expectancies and values, and other outcomes. Dietrich, Moeller, Guo, Vijaranta, and Kracke (2019) measured college students' "dispositional" expectancies and values at the beginning and end of the semester. Over a ten-week period they had students complete a brief questionnaire on their expectancies and values three times during a class period. They identified different profiles of students based on their responses to the "dispositional" questionnaire, and these were associated with students' responses to the situated measures. For example, students who reported higher expectancies and values on the situated measures had higher expectancies entering the class and at the end of the semester. One very interesting finding was that students' "dispositional" intrinsic and attainment value increased between time 1 and time 2 when they reported high expectancies and values during the class sessions.

It is very difficult to illustrate these kinds of situated complexities in a two dimensional model. We clearly need better ways to communicate this complexity and to encourage the type of mixed methods that are necessary to capture it scientifically. Thus

we agree with Nolen's (this volume) comment about the limits of many extant

questionnaire measures to capture the rich situative complexity of motivation.

Future Directions For Research and Theory

Research priorities. We already have made numerous suggestions for future

research so here we note broad areas of research we believe should be priorities for future

work based in SEVT. First, it is important to do more work on information sources

individuals use as well as the processes by which they come to value some activities and

devalue others, both specific activities such as math homework to broader ones like

deciding to major in math or chemistry or medicine or psychology. Most of the research

testing aspects of the theory has relied on survey methodology and so we do not know

much about the processes explaining the observed relations. Researchers doing such

work should focus on developmental and contextual influences on the sources of

information individuals of different ages use, the processes by which they form their

ASCs and STVs, and the nature of the specific hierarchies of ASCs and STVs being

activated for any specific achievement-related choice. Interviews and other

methodologies to examine process rather than relations of constructs to outcomes should

be used. These include the use of more implicit and projective measures, the use of more

time intense ESM and diary methods, the use of more physiological measures, and the

more use of intense observation.

Second, as noted earlier, investigating the interplay of the different aspects of task

in determining overall subjective task value and the factors influencing the formation of

STV and ASC and hierarchies is a key area needing research, and one we are perhaps

most excited about. As with the first suggestion above, researchers doing such work need to attend carefully to developmental and contextual influences. We have focused primarily on the impact of different parenting practice and school environmental factors on children's developing STVs and ASCs. Many other influences need attention.

Third, we need more work on the ways in which STV and ASC hierarchies change in response to feedback while engaged in specific tasks over varying periods of time. What happens to the relative STV attached to a specific course over a semester and both why and for whom? The Dietrich et al. (2019) study is a good beginning to this line of work. Digital learning programs provide excellent opportunities for such work, as do intensive mixed method studies at camps designed to teach people new skill sets.

Fourth, SEVT has been the theoretical basis for much work on gender differences in motivation and an increasing amount of work on ethnic group differences in motivation (e.g., Diener, Marchand, McKellar, & Malanchuk, 2016; Peck, Brodish, Malanchuk, Banerjee, & Eccles, 2014), but more work needs to be done on how culture, ethnicity, gender, and (more importantly) their interactions impact the development of individuals' expectancies and values (see Tonks et al., 2018, and Wigfield & Gladstone 2019, for discussion of culture and ethnicity's impact on the development of children's expectancies and values). When studying ethnicity researchers basing their work in SEVT should address how experiences of racism, discrimination, and oppression influence children's developing ASCs and STVs. Kumar, Zusho, and Bondie (2018) note that most achievement motivation theories (including EVT) have not attended nearly enough to the impact of these powerful forces on students' motivation.

Theoretical directions. We have commented on theoretical issues and directions within expectancy-value theory, notably our discussion of cost and whether the C should be added to EVT, and our decision to emphasize the situated aspects of Eccles and colleagues model by now calling it situated expectancy-value theory. Here we comment briefly on Anderman's (this issue) query about whether all the theories represented in the special issue still are needed and whether it is time for more integrative motivation theory or theories. He based this comment in part on the overlap of some constructs in the different theories. Other authors in this issue have commented on this point. Graham reminded us of Kelly's (1955) point that due to the complexity of human behavior psychological theories need to have "a focus and range of convenience" (p. xx); that is, they cannot cover everything, perhaps even within a subfield like motivation. Dweck's (2017) comprehensive theory of motivation and personality is perhaps the most ambitious recent attempt to unify the motivation field; we applaud the attempt but it remains to be seen whether or how it will guide future research given its macro level approach.

Other authors (including ourselves) have already proposed some integration, at least implicitly. Schunk and DeBenedetto include attributions and task value as two important influences on the development of motivation in their social cognitive perspective. As discussed earlier we include attributions in the "Interpretations of Experience" box in SEVT, and have goals in the "Self-Schemata Box". This is not to say that all aspects of attribution theory or goal theory are represented, but shows at least some integration. We agree with Anderman (this issue) that more integration likely could

be done, particularly with respect to constructs having to do with individuals' beliefs about ability; and intrinsic value, intrinsic motivation, and interest.

In conclusion, we are gratified that SEVT continues to guide much work in the achievement motivation field. We are excited to contribute to and learn from upcoming work based in SEVT.

References

Archambault, I., Eccles, J. S., & Vida, M. N. (2010). Ability self-concepts and subjective

value in literacy: Joint trajectories from grades 1-12. *Journal of Educational*

Psychology, 102(4), 804-816. doi: 10.1037/a0021075.

Atkinson, J. W. (1957). Motivational determinants of risk taking behavior.

Psychological Review, 64, 359-372. doi: 10.1037/h0043445

Bandura, A. (1977). Self-efficacy: Towards a unifying theory of behavioral change.

Psychological Review, 84, 191-215.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.

Barron, K. E., & Hulleman, C. S. (2015). Expectancy-value-cost model of motivation. In

J. S. Eccles & K. Salmela-Aro (Eds.), *International encyclopedia of social and*

behavioral sciences: Motivational psychology (2nd ed.). New York: NY: Elsevier.

Bong, M., & Skaalvik, E. M. (2003). Academic self-concept and self-efficacy: How

different are they really? *Educational Psychology Review, 15*(1), 1–40.

doi:10.1023/A:1021302408382

Clarke, S. (2008). Culture and identity. In T. Bennett & J. Frow (Eds.) *The Sage*

handbook of cultural analysis. Thousand Oaks, CA: Sage.

Csikszenthmihalyi, M. (1997). *The masterminds series. Finding flow: The psychology of*

engagement with everyday life. New York, NY, US: Basic Books.

Conley, A. M. (2012). Patterns of motivation beliefs: Combining achievement goals and

expectancy-value perspectives. *Journal of Educational Psychology, 104*, 32-47.

doi:10.1037/a0026042

Cross, S.E., & Gore, J. S. (2013). Cultural models of the self. In M. Leary and J. P.

Tangey (Eds.), *Handbook of self and identity* (2nd. ed., pp. 587- 615). New York:

Guilford Press.

Cross, W. E. (1991). *Shades of black: Diversity in African American identity.*

Philadelphia PA: Temple University Press.

Diemer, M. A., Marchand, A. D., Mckellar, S. E., & Malanchuk, O. (2016). Promotive

and corrosive factors in African American students' math beliefs and

achievement. *Journal of Youth and Adolescence,45*(6), 1208-1225.

doi:10.1007/s10964-016-0439-9

Dietrich, J., Moeller, J, Guo, J., Vijantara, J., Kracke, B. (2019). In-the-moment profiles

of expectancies, values, and costs. *Frontiers in Psychology, 10*, 1-12.

Durik, A. M., Vida, M., & Eccles, J. S. (2006). Task values and ability beliefs as

predictors of high school literacy choices: A developmental analysis. *Journal of

Educational Psychology, 98*, 382-393.

Dweck, C. S. (2017) From needs to goals and representations: Toward a unified theory of

motivation, personality, and development. *Psychological Review, 124,* 689-719.

Dweck, C. S. (2016). *Mindset: The new psychology of success.*

Eccles, J. S. (1984). Sex differences in achievement patterns. In T. Sonderegger (Ed.),

Nebraska Symposium on Motivation (Vol. 32, pp. 97-132). Lincoln, NE: University of

Nebraska Press.

Eccles, J. S. (1993). School and family effects on the ontogeny of children's interests, self-

perceptions, and activity choice. In J. Jacobs (Ed.), *Nebraska Symposium on Motivation,*

1992: Developmental perspectives on motivation. (pp. 145- 208) Lincoln, NB: University

of Nebraska Press.

Eccles, J. S. (2005). Subjective task values and the Eccles et al. model of achievement-

related choices. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and*

motivation (pp. 105-121). New York: Guilford.

Eccles, J.S. (2009). Who am I and what am I going to do with my life? Personal and

collective identities as motivators of action. *Educational Psychologist, 44*(2),78-89.

doi:10.1080/00461520902832368

Eccles, J. S. (2012). Supporting America's children and adolescents. *Macalester*

International, 29, 1-23.

Eccles, J. S. (2014, March). Invited address presented to the Motivation in Education

Special Interest Group at the Annual Meeting of the American Educational

Research Association, Philadelphia.

Eccles, J. S., & Midgley, C. (1989). Stage/environment fit: Developmentally appropriate

classrooms for early adolescents. In R. Ames & C. Ames (Eds.), *Research on*

motivation in education (Vol. 3, pp. 139-181). New York: Academic Press.

Eccles, J. S., Midgley, C., Wigfield, A., Reuman, D., Mac Iver, D., & Feldlaufer, H. (1993).

Negative effects of traditional middle schools on students' motivation. *Elementary School*

Journal, 93, 553- 574. doi:0013-5984/93/9305-0008$01.00

Eccles, J. S. & Roeser, R. W. (2010). An ecological view of schools and development.

In J. L Meece and J. S. Eccles (Eds.), Handbook of Research on Schools, Schooling,

and Human Development, (pp. 6-21). New York: Routledge.

Eccles, J. S., & Wigfield, A. (1995). In the mind of the actor: The structure of

adolescents' achievement task values and expectancy-related beliefs. *Personality

and Social Psychology Bulletin*, *21*, 215-225.

Eccles, J. S., Wigfield, A., Harold, R., & Blumenfeld, P. B. (1993). Age and gender differences

in children's self- and task perceptions during elementary school. *Child Development, 64*,

830-847. doi:10.1111/j.1467-8624.1993.tb02946.x

Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In W. Damon

(Series Ed.) & N. Eisenberg (Volume Ed.) *Handbook of child psychology* (5th ed.,

Vol. III, pp. 1017-1095). New York: Wiley.

Eccles-Parsons, J. S., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J.

L., & Midgley, C. (1983). Expectancies, values, and academic behaviors. In J. T.

Spence (Ed.), *Achievement and achievement motivation* (pp. 75-146). San

Francisco, CA: W. H. Freeman.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations*

Flake, J. K., Barron, K. E., Hulleman, C., McCoach, D. B., & Welsh, M. E. (2015).

Measuring cost: The forgotten component of expectancy-value

theory. *Contemporary Educational Psychology*, *41* 232–244.

Gaspard, H., Dicke, A.-L., Flunger, B., Schreier, B., Häfner, I., Trautwein, U., &

Nagengast, B. (2015). More value through greater differentiation: Gender

differences in value beliefs about math. *Journal of Educational Psychology, 107*,

663–677.

Gaspard, H., Dicke, A., Flunger, B., Brisson, B., Hafner, I., Nagengast, B., & Trautwein,

U. (2017). Fostering adolescents' value beliefs for mathematics with a relevance

intervention in the classroom. *Developmental Psychology, 51*(9), 1226–1240.

Gaspard, H., Häfner, I., Parrisius, C., Trautwein, U., & Nagengast, B. (2017). Assessing

task values in five subjects during secondary school: Measurement structure and

mean level differences across grade level, gender, and academic

subject. *Contemporary Educational Psychology*, *48*, 67-84.

doi:10.1016/j.cedpsych.2016.09.003

Gaspard, H., Lauermann, F., Rose, N., Wigfield, A., & Eccles, J. S. (in press). Cross-

domain trajectories of students' ability self-concepts and intrinsic value in math

and language arts. *Child Development.*

Gaspard, H., Parrisius, C., Piesch, H., Wille, E., Nagengast, B., Trautwein, U., &

Hulleman, C. H. (2019, April). *The effectiveness of a utility-value intervention in*

math classrooms: A cluster-randomized trial. Paper presented at the annual

meeting of the American Educational Research Association, Toronto.

Gaspard, H., Wigfield, A., Jiang, Y., Nagengast, B., Trautwein, U., & Marsh, H. W.

(2018). Dimensional comparisons: How academic track students' achievements

are related to their expectancy and value beliefs across multiple

domains. *Contemporary Educational Psychology, 52*, 1-14.

Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Priniski, S. J., & Hyde, J. S. (2016).

Closing achievement gaps with a utility-value intervention: Disentangling race

and social class. *Journal of Personality and Social Psychology, 111*(5), 745-765. http://dx.doi.org/10.1037/pspp0000075

Harackiewicz, J. M., & Priniski, S. (2018). Improving student outcomes in higher education: The science of targeted interventions. *Annual Review of Psychology, 69*, 409-435. doi.org/10.1146/annurev-psych-122216-011725.

Harackiewicz, J. M., Rozek, C. S., Hulleman, C. S. & Hyde, J. M. Helping parents to motivate adolescents in mathematics and science: An experimental test of a utility-value intervention. Psychological Science, 43, 899–906. doi:10.1177/0956797611435530

Harackiewicz, J.M., Tibbetts, Y., Canning, E.A., & Hyde, J.S. (2014). Harnessing values to promote motivation in education. In S. Karabenick & T.. Urdan (Eds.), *Advances in motivation and achievement* (Vol. 18, pp. 71-105). Bingley, UK: Emerald Group Publishing.

Harter, S. (2015). *The construction of the self: Developmental and sociocultural considerations* (2nd Ed). New York: Guilford Press.

Hecht, C. A., Harackiewicz, J. M., Priniski, S., Canning, E. M., Tibbets, Y., & Hyde, J. S. Promoting persistence in the biological and medical sciences: An expectancy-value approach to intervention. *Journal of Educational Psychology.*

Hecht, C. A., Priniski, S., & Harackiewicz, J. M. (2019). Understanding long-term effects of motivation interventions in a changing world" In E. N. Gonida & M. Lemos (Eds.), *Motivation in education at a time of global change: Theory, research, and*

implications for practice (Advances in motivation and achievement, vol. 20, pp.

81-98). London: Emerald.

Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development.

Educational Psychologist, 41, 111-127. doi: 10.1207/s15326985ep4102_4

Higgins, E. T., Franks, B., Pavarini, D., Sehnert, S., & Manley, K. (2013). Expressed likelihood

as motivator: Creating value through engaging what is real. *Journal of Economic

Psychology, 38*, 4-15.

Hulleman C.S., & Harackiewicz, J. M. (2009). Promoting interest and performance in

high school science classes. *Science, 32*6, 1410–1412.

Jacobs, J., Lanza, S., Osgood, D. W., Eccles, J. S., & Wigfield, A. (2002). Ontogeny of

children's self-beliefs: Gender and domain differences across grades one through

12. *Child Development, 73*, 509-527.

Kelley, H. H. (1955). Salience of membership and resistance to change of group-

anchored attitudes. *Human Relations, 8*, 275-289

Kumar, R., Zusho, A., & Bondie, R. (2018). Weaving cultural relevance and

achievement motivation into inclusive classrooms. *Educational Psychologist, 53*,

73-96.

Lewin, K. (1938). *The conceptual representation and the measurement of psychological

forces*. Durham, NC: Duke University Press.

Marsh, H. W. (1986). Verbal and math self-concepts: An internal/external frame of

reference model. *American Educational Research Journal, 23,* 129-149.

doi:10.2307/1163048

Marsh, H. W., Pekrun, R., Parker, R. D., Murayama, K., Guo, J., Dicke, T., & Arens, A.
    K. (2018). The murky distinction between self-concept and self-efficacy: Beware
    of jingle-jangle fallacies. *Journal of Educational Psychology.*

Marsh, H. W., Trautwein, U., Lüdtke, O, Köller, O, & Baumert, J. (2005). Academic self-
    concept, interest, grades, and standardized test scores: Reciprocal effects models of
    causal ordering. *Child Development, 76,* 397-416.

Meece, J. L., Wigfield, A., & Eccles, J. S. (1990). Predictors of math anxiety and its
    consequences for young adolescents' course enrollment intentions and
    performances in mathematics. *Journal of Educational Psychology*, *82*, 60-70.
    doi:10.1037/0022-0663.82.1.60

Möller, J., & Marsh, H. W. (2013). Dimensional comparison theory. *Psychological
    Review, 120*, 544–560. doi:10.1037/a0032459

Musu-Gillette, L. E., Wigfield, A., Harring, J. & Eccles, J. S. (2015). Trajectories of
    change in student's self-concepts of ability and values in math and college major
    choice. *Educational Research and Evaluation, 21*, 343-370.
    https://doi.org/10.1080/13803611.2015.1057161

Nagengast, B., Marsh, H. W., Scalas, L. F., Xu, M., Hau, K.T., & Trautwein, U. (2011).
    Who took the X out of expectancy-value theory? A psychological mystery, a
    substantive-methodological synergy, and a cross-national generalization.
    Psychological Science, 22, 1058-1066. doi:10.1177/0956797611415540

Nolen, S. B., Horn, I. S., Ward, C. J. (2015). Situating motivation. *Educational
    Psychologist.*

Oyserman, D. (2014). Identity-based motivation: Core processes and intervention examples. In S. Karabenick & T. Urdan (Eds.), *Motivational interventions* (Vol. 18: *Advances in motivation and achie*vement, pp. 213-242. New York: Emerald.

Peck, S. C., Brodish, A. B., Malanchuk, O., Banerjee, M., & Eccles, J. S. (2014). Racial/ethnic socialization and identity development in Black families: The role of parent and youth reports. *Developmental Psychology, 50*(7), 1897-1909. http://dx.doi.org/10.1037/a0036800

Penuel, W. R., & Wertsch, J. V. (1995). Vygotsky and identity formation: A sociocultural approach. *Educational Psychologist, 30,* 83-92.

Perez, T., Cromley, J. G., & Kaplan, A. (2014). The role of identity development, values, and costs in college STEM retention. *Journal of Educational Psychology, 106*, 315-329.

Perez, T., Dai, T., Kaplan, A., Cromley, J. G., Brooks, W. D., White, A., Balsai, M. J. (2019).Interrelations among expectancies, task values, and perceived costs in undergraduate biology achievement. *Learning and Individual Differences, 72*, 26-38.

Rozek, C. S., Svoboda, R. C., Harackiewicz, J. M., Hulleman, C. S., & Hyde, J. S. (2017). Utility-value intervention with parents increases students' STEM preparation and career pursuit. *Proceedings of the National Academy of Sciences of the United States of America, 114,* 909 –914. http://dx.doi.org/10.1073/pnas.1607386114

Rosenzweig, E. Q. & Wigfield, A. (2016).   STEM motivation interventions for

adolescents: A promising start, but farther to go. *Educational Psychologist, 51*,

146-163.

Rosenzweig, E. Q., Wigfield, A., & Hulleman, C. S. (2019). More useful, or not so bad?

Examining the effects of utility value and cost reduction interventions in college

physics. *Journal of Educational Psychology.* Advance online publication.

doi:10.1037/edu0000370

Rotter, J. (1954). *Social learning and clinical psychology.* Englewood Cliffs NJ: Prentice Hall.

Ruble, D. N., Martin, C. L., & Berenbaum, S. A. (2006). Gender development. In N. Eisenberg

(Ed.), *Social, emotional, and personality development* (Vol.3, 6th Ed., pp. 858–932) New

York: Wiley.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and

new directions. *Contemporary Educational Psychology, 25,*54-67.

Ryan, R. M., & Deci, E. L. (2016). Facilitating and hindering motivation, learning, and

well-being in schools: Research and observations from self-determination theory.

In K. R. Wentzel K.R.& D. B. Miele (Eds.), *Handbook of motivation at school*

(2nd Ed., pp. 96–119). Mahwah, NJ: Erlbaum.

Safavian, N. (2019). What makes them persist? Expectancy-value beliefs and the

Math participation, performance, and peparedness of Hispanic youth. *AERA*

Open, 5, 1-7.

Schunk, D. H., & DeBenedetto, M. K. (2016). Self-efficacy theory in education. In K. R.

Wentzel & D. B. Miele (Eds.), *Handbook of motivation at school* (2nd Ed., pp. 34-

54). New York: Routledge.

Schunk, D. H., & Pajares, F. (2009). Self-efficacy theory. In K. R. Wentzel & A.

Wigfield (Eds.), *Handbook of motivation at school* (pp. 35-54). New York:

Routledge.

Simpkins, S. D., Davis-Kean, P. E., & Eccles, J. S. (2006). Math and science motivation:

A longitudinal examination of the links between choices and beliefs.

Developmental Psychology, 42(1), 70-83. doi:10.1037/0012-1649.42.1.70

Simpkins, S. D., Fredricks, J., & Eccles, J. S. (2015). The role of parents in the ontogeny

of achievement-related motivation and behavioral choices. *Monographs of the*

Society for the Study of Child Development, 80(2), 1-22. doi:10.1111/mono.12157

Song, J., & Chung, Y. (2020). Reexamining the interaction between expectancy and

value in task settings. *Learning and Individual Differences, 78.*

Tolman, E. C. (1932). *Purposive behavior in animals and men.* New York: Appleton-

Century-Crofts.

Tonks, S. M., Wigfield, A., & Eccles, J. S. (2018). Expectancy value theory in cross-

cultural perspective: What have we learned in the last 15 years? In G. A. D. Liem

& D. McInerney (Eds.), *Recent advances in sociocultural influences on*

motivation and learning: Big theories revisited (2nd Ed). Information Age

Publishers.

Trautwein, U., Marsh, H. W., Nagengast, B., Ludtke, O., Nagy, G., & Jonkmann, K. (2012). Probing for the multiplicative term in modern expectancy-value theory: A latent interaction modeling study. *Journal of Educational Psychology, 104,* 763-777. doi:10.1037/a0027470

Wang, M., Eccles, J.S. & Kenny, S. (2013). Not lack of ability but more choice: Individual and gender difference in choice of careers in sciences, technology, engineering, and Mathematics. *Psychological Sciences, 24(5),* 770-775.

Wang, Q., & Pomerantz, E.M. (2009). The motivational landscape of early adolescence in the United States and China: A longitudinal investigation. *Child Development, 80*, 1272-87.

Watt, H. M. G. (2004). Development of adolescents' self-perceptions, values, and task perceptions. *Child Development, 75*, 1556–1574. doi:10.1111/j.1467-8624.2004.00757.x

Watt. H. M.G., Bucich, M., & Dacosta, L. (2019).Adolescents' motivational profiles in mathematics and science: Associations with achievement striving, career aspirations, and psychological well-being. *Frontiers in Psychology, 10*.

Watt, H. M. G., Carmichael, C., & Callingham, R. (2017). Students' engagement profiles in mathematics according to learning environment dimensions: developing an evidence base for best practice in mathematics education. *Sch. Psychol. Int.* 38, 166–183. doi: 10.1177/0143034316688373

Watt, H. M. G., Shapka, J. D., Morris, Z. A., Durik, A. M., Keating, J. P., & Eccles, J. S. (2012). Gendered motivational processes affecting high school mathematics

participation, educational aspirations, and career plans: A comparison of samples
from Australia, Canada, and the United States. *Developmental Psychology, 48,*
1594-1611.

Watt. H. M.G., Bucich, M., & Dacosta, L. (2019).Adolescents' motivational profiles in
mathematics and science: Associations with achievement striving, career
aspirations, and psychological well-being.   *Frontiers in Psychology, 10.*

Weiner, B., (1985). An attributional theory of achievement motivation and emotion.
Psychological Review, 92(4), 548-573. doi:10.1037/0033-295X.92.4.548

Wigfield. A. (1994). Expectancy - value theory of achievement motivation: A
developmental perspective. *Educational Psychology Review, 6*, 49-78. doi:
10.1007/BF02209024

Wigfield, A., Cambria, J., & Eccles, J. S. (2012). Motivation in education. In R. C. Ryan
(Ed.), *Oxford handbook of motivation* (pp.463-478). New York: Oxford University
Press

Wigfield, A., Cambria, J., & Ho, A. (2012). Motivation for reading information texts. In J.
T. Guthrie, A. Wigfield, A., & S. L. Klauda (Eds.), Adolescents' *engagement in
academic literacy.* College Park, MD: University of Maryland.

Wigfield, A., & Eccles, J. (1992). The development of achievement task values: A theoretical
analysis. *Developmental Review, 12*, 265-310.

Wigfield, A., & Eccles, J. S. (2000). Expectancy - value theory of motivation.
Contemporary Educational Psychology, 25, 68-81.

Wigfield, A., & Eccles, J. S. (2020). 35 Years of research on students' subjective task values and

    motivation: A look back and a look Forward. In A. Elliot (Ed.), *Advances in motivation*

    *science (*Vol. 7, pp. 162-193*).* New York: Elsevier.

Wigfield, A, Eccles, J. S., Fredricks, J., Simpkins, Roeser, R., & Schiefele, U. (2015).

    Development of achievement motivation and engagement. In R. Lerner (Series ed.) and

    M. Lamb (Vol. Ed.), *Handbook of child psychology and developmental science* (7th ed.,

    vol. 3, pp. 657-700). New York: Wiley.

Wigfield, A., Eccles, J. S., & Möller, J. (under review). What explains the linkages between

    expectancies, values, performance and choice? Insights from dimensional comparison

    theory.

Wigfield, A., Eccles, J. S., Yoon, K. S., Harold, R. D., Arbreton, A., Freedman-Doan, C.,

    & Blumenfeld, P. C. (1997). Changes in children's competence beliefs and

    subjective task values across the elementary school years: A three-year study.

    Journal of Educational Psychology, 89, 451-469. https://doi.org/10.1037/0022-

    0663.89.3.451

Wigfield, A., & Gladstone, J. (2019). How students' expectancies and values relate to

    their achievement in times of global change and uncertainty. In E. N. Gonida &

    M. Lemos (Eds.), *Motivation in education at a time of global change: Theory,*

    research, and implications for practice (Advances in motivation and

    achievement, Vol. 20). London: Emerald.

Wigfield, A., Rosenzweig, E., & Eccles, J. (2017). Achievement values. In Elliot, A. J.,

    Dweck, C. S., & Yeager, D. S. (Eds.), *Handbook of competence and motivation:*

    Theory and application (2nd ed., pp. 116-134). New York, NY: Guilford Press

Wigfield, A., Tonks, S. M., & Klauda, S. L. (2016). Expectancy-value theory. In K. R.

    Wentzel & D. B. Miele (Eds.), *Handbook of motivation at school* (2nd ed., pp. 55-

    74). New York: Routledge.

Yeager, D. S., Hanselman, P., Walton, G. M., Murray, J. S., Crosnoe, R., Muller, C.,

    Tipton, E., Schneider, B., Hulleman, C. S., Hinojosa, C., Paunesku, D., Romero,

    C., Flint, K., Roberts. A., Trott, J., Ischan, R., Buontempo, J., Man Yang, S.,

    Carvallho, C.M., Hahn, P. R., Gopalan. M., Mhatre, P. Fergusaon, R., Duckworth,

    A. L., & Dweck, C. (2019), *Nature,* DOI:10.1038/s41586-019-1466-y.

Yeager, D. S., & Walton, G. M. (2011). Social-psychological interventions in education:

    They aren't magic. *Review of Educational Research, 81,*267-301.

Figure 1.   Eccles Expectancy Value Model of Achievement Choices
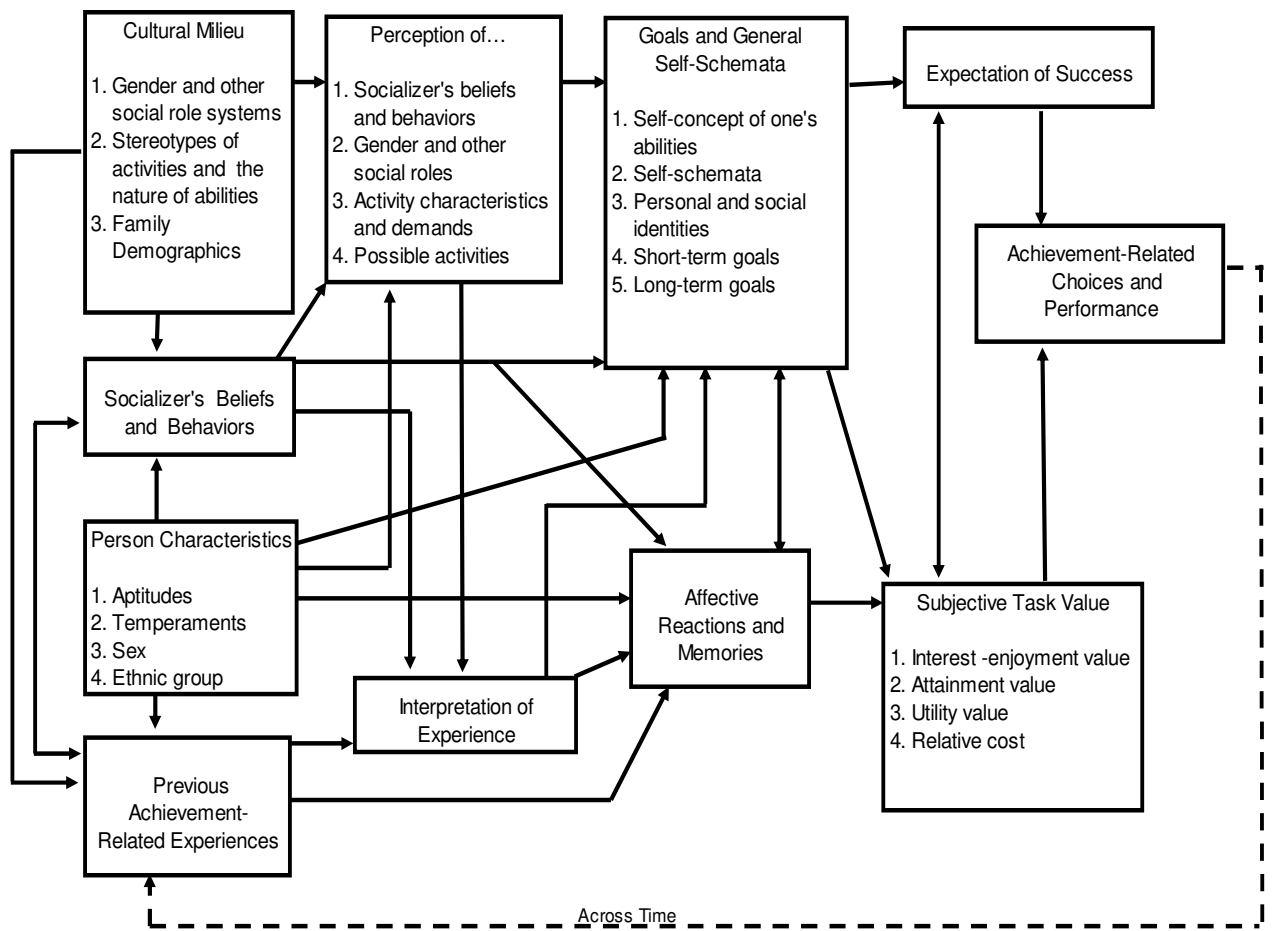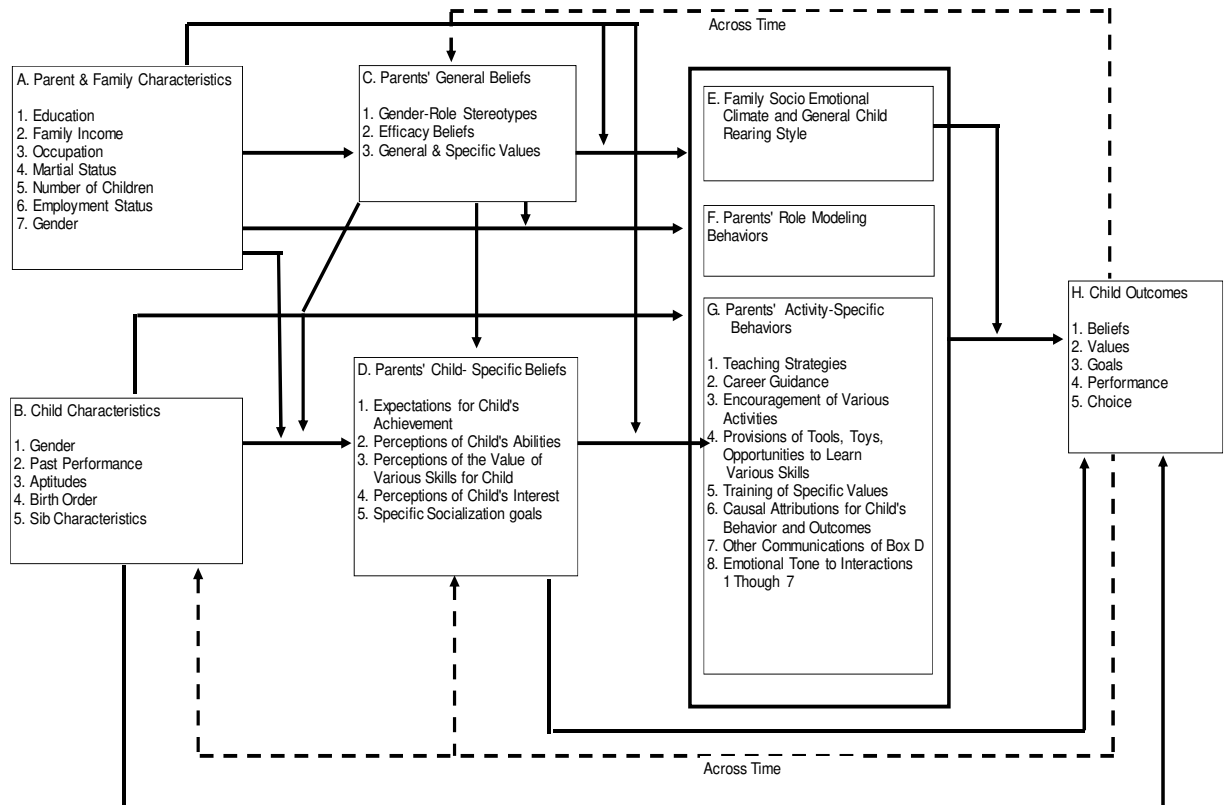
Figure 2. Eccles and colleagues' model of parents' socialization of motivation