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Achievement Strivings

Motives and Goals That Promote Competence

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K. Ann Renninger

In this chapter we describe the development of *achievement strivings*, a person's motives and goals to be competent, to acquire the skills and knowledge needed to work with some content, such as mathematics or tennis (White, 1959). We consider these topics in relation to McAdams's (2013) description of the three layers of psychological selfhood: the *actor self* (responsive to particular content in the situation), the *agent self* (aware of explicit goals), and the *author self* (thoughtful about prior experiences for identifying meaning). This approach complements and extends recent discussions of the history and refinement of achievement goal constructs over time (Senko, 2016), constructs and processes involved in competence motivation (Elliot, Dweck, & Yeager, 2017), pursuit of achievement goals in the context of other valued goals (Hofer & Fries, 2016), and beliefs about capabilities, including their origins and consequences (Usher, 2016). Specifically, we explain that consideration of selfhood, and its relation to individuals' ages, experiences, and interest, have implications for working theory and measurement of achievement motivation. Content may be necessary for engagement of the self at all three levels in order to foster sustained and meaningful engagement, even though achievement strivings at the level of the agent self can operate independent of particular content.

McAdams (2013) describes three layers of selfhood: actor, agent, and author. These layers help clarify how explicit achievement strivings might be facilitated by implicit strivings, and vice versa. Selfhood begins to develop in early childhood, beginning with the self as *actor*, evolves in middle childhood to include the self as *agent*, and following this, to also include the self as *author*. For example, toddlers engage the actor self. They are responsive to situations, including others' expectations, but are not yet self-aware, and they cannot reason abstractly. As such, achievement strivings among toddlers are promoted by a ball that is out of reach, piano keys that can be pressed to make noise, or wooden blocks that can be stacked until the tower falls over. These strivings emerge in direct contact with the environment and specific content. A person's agent self emerges in middle childhood, along with an increased capacity for self-awareness and abstract thought. For example, a fifth grader might construct a skateboarding ramp in the driveway, plan to join a youth soccer league, or try out for a role in the school play. Achievement strivings that emerge for the agent self are a consequence of explicit goals and values associated with those goals. Finally, the author self that develops during adolescence can reflect on prior experiences and find coherence in past choices. For exam-

ple, an adult can describe the events that led to returning to school to finish college, becoming a biologist, or quitting a job in order to start a business. Achievement strivings that emerge for the author self are a consequence of reflecting on past achievement opportunities in order to clarify what has been personally rewarding (or not) and what is worth pursuing in the future.

The analogy of self as an agent is prominent in research on achievement motivation because most contemporary research has focused on the benefits of adopting explicit goals (e.g., Ames, 1992; Dweck & Leggett, 1988; Locke & Latham, 1990; Nicholls, 1984), and the explicit values that fuel those goals, such as weighing costs and benefits (e.g., Eccles et al., 1983; Feather, 1988). This is a rational perspective, in that people are assumed to know what they can and want to accomplish and are expected to exert effort to move toward those ends through deliberate behaviors and choices. This set of premises provides a basis for research on self-concept of ability, achievement goals, utility value, and cost (e.g., Flake, Barron, Hulleman, McCoach, & Welsh, 2015; Gniewosz, Eccles, & Noack, 2015; Yeager et al., 2016).

Although recent research on achievement strivings has focused heavily on explicit goals, which we associate with the agent self, this was not always the case. Early conceptualizations of achievement motivation focused on implicit motives (e.g., McClelland, Clark, Roby, & Atkinson, 1949; Tomkins, 1947). These perspectives suggested that as individuals respond to situations that afford opportunities for skills development, they are likely to engage in activities that support the development of competence without explicit goals. For example, individuals might work toward understanding a particular content, such as biology, because their interest is triggered, without a specific sense of what is possible. The extent to which achievement strivings are explicit for the agent self may be influenced by both the self as actor and agent in relation to particular content. Specifically, when people are interested in content, implicit and explicit achievement strivings may be coordinated to direct people toward what they want. This is consistent with research from neuroscience indicating that the brain circuitry associated with reward is activated once interest is triggered and begins to develop (Panksepp, 1998; see Renninger & Hidi, 2016). As such, discussion of meaningful and sustained achievement strivings for competence needs to account for

whether and how much interest a person has for particular content.

Interest

Developed interest is characterized by repeated, voluntary, and independent perseverance to engage the challenges of particular content (e.g., ecology, mathematics, birds; Hidi & Renninger, 2006; Renninger & Hidi, 2016). Defined as a variable that is malleable and can be supported to develop, *interest* describes both a person's psychological state during engagement with particular content and the motivation to reengage with that content over time (Hidi & Renninger, 2006; Krapp, 2002; Schiefele, 1991; Silvia, 2006). Interest requires consideration of achievement strivings beyond the agent self. Specifically, the actor self may be especially relevant to the experience of interest, and the author self may be especially relevant for understanding past successes and failures in a larger context. As such, striving is a product of the actor self (e.g., being caught up in watching a hummingbird), which later may facilitate the identification of explicit goals (e.g., planning a vacation to learn about birds) and contribute to the sense of having a valued identity (see related discussions in Krapp, 2002; Renninger, 2009).

We describe the case of a person whom we refer to as Jason. His case provides an illustration of the layered psychological self and how he integrates the achievement strivings associated with his job as an academic ecologist and his hobby of birding, which he does in his free time.

Meet Jason, Ecologist and Birder

Jason is an ecologist, who grew up in the outskirts of Indianapolis. His parents met in college, where his dad studied engineering and his mom studied history. They took family vacations every summer to a little cabin in a rural part of their state to unwind and to appreciate nature. Now, as a grownup, Jason is a faculty member in a biology department at a university. He has developed interest in both ecology and watching birds. His interest in each overlaps, but he pursues them in different ways. Although he is interested in ecology and believes it is valuable, he also sees it as what he is committed to do in his career, which carries certain respon-

sibilities. He is deliberate in setting goals that further his competence and career success, and feels satisfaction when he achieves those goals. His interest in ecology helps him to sustain deep engagement in his work and allows him to continue to find new things to understand. As such, it also helps him continue to identify ways in which he can further his competence.

In contrast, Jason sees birding as a hobby. It is what he does in his free time. Although he does not experience pressure to perform at a particular level of competence, exercising and developing competence in birding clearly contributes to his continued interest in it. Moreover, Jason sees the benefits of using his ecology knowledge while bird watching. It enables him to seek out and appreciate rare birds. This also means that he continues to develop knowledge relevant to ecology.

Research on achievement motivation tends to focus on the types of goals and contexts that are reflected in Jason's activities as an ecologist. He knows what he wants and needs to do to be competent in ecology. In this sense, he is an agent as he navigates his career, doing research, publishing, and working with and teaching students. He is also working with a reasonably defined and socially accepted definition of competence for academics, which can help him identify and set goals that will lead to his success. Within this context, his interest in ecology supports his engagement and shapes the trajectory of his career development.

Although birders have many formal ways to evaluate their accomplishments, this kind of involvement is not Jason's. From his perspective, even though achievement strivings are critical to his engagement in the activity, the achievement context for birding does not have a clear definition of competence. Thus, Jason's goals as a birder are less explicit. His emphasis is on doing birding itself, even though he has a desire to achieve in the sense that he likes to sight rare birds and to gain knowledge of what other birders have seen. He is an actor while watching birds, and he may not realize the goals that he (as actor) sets for himself while birding (see related discussion in Renninger, Bachrach, & Posey, 2008). In other words, the actor self is central to the experience of interest, although, of course, the agent self also plays a role at times (e.g., when Jason actively sets aside time on a Saturday morning to watch birds). Finally, the author self makes sense of both of these domains and helps him understand how these dif-

ferent activities fit together—the decisions and trade-offs that are made along the way—and the satisfaction Jason gains from both.

Achievement Strivings

Early psychologists studying achievement strivings focused on *achievement* as a general tendency to desire success that varies and could be generalized to a person's activity across domains (e.g., McClelland et al., 1949; Murray, 1938). They also recognized that it varied between people and that it could be influenced by situations. However, unlike most contemporary discussions (see review by Schultheiss & Brunstein, 2005, for an exception), earlier psychologists thought that people were not able to accurately report on their achievement motives. Therefore, they used projective measures that relied on individuals' interpretations of situations along achievement-related dimensions, rather than asking them to self-report them (e.g., Tomkins, 1947). For example, McClelland and colleagues (1949) asked participants to generate narratives about people and events in ambiguous pictures (e.g., a picture of a pensive boy in the foreground with a mural of a surgical procedure in the background), and coded their responses for achievement themes (e.g., stories about future career success). The researchers also manipulated the extent to which the study context emphasized achievement and evaluation (e.g., a relaxed context or a testing context), in order to identify the themes that emerged when achievement was made salient. In this way, they identified themes about challenges, goals, and obstacles that were elicited by the more achievement-oriented context of evaluation.

Over time, achievement strivings came to be viewed as reflecting beliefs about possibility, and motives were thought to be subjectively accessible. Researchers began using explicit measures of achievement strivings that asked individuals to reflect and report on achievement motives and behaviors (see review by Fineman, 1977), and self-reported measures became more widely accepted. For example, Jackson (1974) developed a self-report measure that asked participants to report on their behaviors related to achievement and failure, with the assumption that some individuals desire achievement more than others, and that their responses will reflect these tendencies. Similar expectations continue

to inform stand-alone measures of achievement motivation (e.g., Spence & Helmreich, 1983), and they are embedded in measures of higher-order personality constructs such as conscientiousness (e.g., McCrae & Costa, 1997). The general emphasis in such studies is on the intensity of strivings as a feature of individuals, not on how the strivings of a person vary within a person from one domain to another (e.g., from ecology to birding), or how achievement strivings in new domains might be developed.

In using explicit measures almost exclusively, many researchers have narrowed their consideration of achievement strivings to focus primarily on explicit achievement strivings. This highlights the self as the agent of future outcomes and beliefs about competence, and values are understood to guide explicit goals for selecting activities that cultivate competence (e.g., Elliot & McGregor, 2001; Locke & Latham, 2002; Simpkins, Davis-Kean, & Eccles, 2006). Some investigators assess motivations within domains, recognizing that beliefs about competence and value can be dramatically different from one domain to the next, and that beliefs are more predictive of behavior when the belief and the behavior are assessed within the same domain (e.g., Bandura, 1986; Eccles et al., 1983; see discussion in Urda & Schoenfelder, 2006). In fact, social-psychological interventions based on this premise have demonstrated that individuals' achievement strivings are influenced by changes in feelings of belonging (e.g., Walton, Cohen, Cwir, & Spencer, 2012), perceptions of science as a "chilly climate" (e.g., Walton, Logel, Peach, Spencer, & Zanna, 2015), performance expectations (Hulleman, Godes, Hendricks, & Harackiewicz, 2010), cultural values (Shechter, Durik, Miyamoto, & Harackiewicz, 2011) and utility value (e.g., Harackiewicz et al., 2016).

In summary, achievement strivings were initially conceptualized as being implicit and therefore not part of individuals' beliefs about themselves. More recently, conceptualizations of achievement strivings have been shifted to focus on the self as an agent of future outcomes and have been studied at both the broad level of personality and within particular domains. Although this approach has allowed researchers to gain traction on how explicit achievement strivings work, and accentuates the role of what we consider the agent self, it is critical not to forget the role of the implicit self, described in earlier work.

McClelland, Koestner, and Weinberger (1989) noted that both explicit and implicit motives operate simultaneously and may capture qualitatively different and relatively independent constructs. In this chapter, we suggest the importance of returning to this insight. Achievement strivings that naturally occur when interest is developed can be implicit and cannot be overlooked. Jason's case provides an illustration. Jason's enjoyment of birding led him to immerse himself in environments on the weekends that can help him think about ecology, and his strivings in ecology were triggered and continue to be propelled by his enjoyment as he develops his knowledge of rare birds in particular. A complete account of achievement strivings needs to acknowledge explicit goals, as well as nonconscious goals, or implicit motives that enable Jason to seize opportunities that add to his possibilities (McClelland, 1985). We further note that whereas explicit achievement strivings are captured in the achieving self as an agent, implicit achievement strivings may be more accurately captured by considering the achieving self as an actor. Both are important and can be mutually supportive.

Development of the Agent Achieving Self

The agent self relies on several aspects of self-knowledge in order to assess, plan, and act on achievement strivings. These include beliefs about competence, achievement goals, utility value, and cost. We discuss these separately because they become relevant at different stages of development, but they function together, are typically correlated, and inform each other (see Wigfield & Cambria, 2010).

Beliefs about Competence

Answers to questions such as "Can I play tennis?", "How good am I at drawing?", "Can I improve my public speaking skills?", and "How well could I answer more complex math problems?" are beliefs about one's competence. The beliefs are central to explicit achievement strivings. There are several constructs that describe individuals' beliefs about competence, including self-concept of ability (Eccles & Wigfield, 1995, 2002; Marsh, 1989), self-efficacy (Bandura, 1986, 1997), perceived competence (Harackiewicz & Sansone, 1991), theories of intelligence (mindset; Dweck & Leggett, 1988),

and expectancies for success (Atkinson, 1974; Eccles et al., 1983; Tolman, 1932; Vroom, 1964). They share a focus on people's beliefs about their current and future capabilities. A developmental analysis of explicit achievement strivings begins with beliefs about competence because they orient the achieving agent self toward what is possible.

Even very young children have the capacity to understand competence, and they care about it. They know, for example, whether they can add and subtract, say the alphabet, and so forth. In assessing their own capacities, children tend to focus on what they can do, defining competence at an intrapersonal level. As such, young children have positive (perhaps even overly optimistic) beliefs about their competence and tend to believe that they are competent in many different domains (Nicholls, 1979; Pajares, 1996; Schunk, 1995; Stipek & Mac Iver, 1989). These feelings have been described as a fundamental desire to be effective in the environment (White, 1959), and a foundation for core beliefs about the self as valuable (Covington, 1984, 1999; Harter, 1999). Along these lines, incompetence feels bad even to preschoolers, who expressed shame if they performed poorly on a task (Stipek, Recchia, & McClintic, 1992).

Over time, children's perspectives on competence shift from focusing only on the self to comparing themselves with others, and they also come to understand that their competence varies across different activities and subjects. Feedback from tasks and from people contributes to their perceptions about their abilities (Covington, 1984; Harter, 1999, 2006), and children can be supported to develop an interest in new content (Renninger & Hidi, 2016) and recognize that they can learn (e.g., Bempechat, London, & Dweck, 1991). Wigfield and colleagues (1997; see also Wigfield & Cambria, 2010) note that individuals are acutely aware of their competence and how they are evaluated by other people. Although there is evidence that self-concept of ability becomes more individualized with age, even young children show different beliefs in different domains (Marsh, 1989; Marsh, Craven, & Debus, 1991). For example, preschool-aged children showed domain specificity of self-concept of ability for math versus verbal activities (Marsh, Ellis, & Craven, 2002).

Children's perspectives on competence widen further when they begin to engage in self-other comparison around ages 8–10 years. Children

in this age range are increasingly sensitive to performance feedback from the environment and use this feedback to judge themselves (Harter, 2003; Möller, Pohlmann, Köller, & Marsh, 2009). This developmental shift occurs as children come to understand their own capacities in relation to other people, and as they increase their ability to hold multiple beliefs about the self that may seem contradictory (e.g., feeling competent at mathematics but not reading, see Harter, 1986). It also affects their readiness to develop new interests and what educators can do to support them to do so (Renninger, 2009). It is not surprising that as children get older and begin to use multiple sources to evaluate their competence, their beliefs about their abilities tend to decrease (De Fraine, Van Damme, & Onghena, 2007; Liu, Wang, & Parkins, 2005). If they are to develop new areas of competence (some of which may become interests), they need different types of supports (encouragement, modeling, opportunities to practice) than they did as younger children.

Achievement Goals

Beliefs about what is possible are supported by beliefs about competence (Schunk & Pajares, 2002; Wigfield & Eccles, 2002), as well as interest and willingness to engage (Renninger, 2009; Renninger et al., 2008), which can ultimately support the adoption of explicit goals. A *goal* is a representation of a desired end state (Elliot, 2005; Elliot & Fryer, 2008; Locke & Latham, 1990). In order to set an explicit goal, an individual needs to be able to comprehend at least a rudimentary sense of time (i.e., the end state is presumed to occur at some time point beyond the present), care about the end state (i.e., the end state is valuable), and recognize him- or herself as an agent in the pursuit (Bandura, 1986; Elliot & Fryer, 2008). Articulation of explicit achievement goals relies on individuals having the capacity to identify and integrate these ideas. As children experience the world, they see that certain behaviors precede other events. This allows for the possibility of anticipation, which ultimately develops into an understanding of time, and how things can change from the past to the future (Nuttin & Lens, 1985). With a sense of time, children can imagine how their own efforts might bring about certain outcomes, which leads to the identification of explicit goals, some of which are related to achievement and competence.

Achievement goals are focused on a desired end state for competence, and depending on how competence is defined, they are often categorized as being either mastery or performance goals (Ames, 1992; Dweck & Leggett, 1988; Nicholls, 1984), even though these are not mutually exclusive (e.g., Barron & Harackiewicz, 2001; Pintrich, 2000). When individuals set *mastery goals*, they define competence based on either task-specific criteria (e.g., performing the task optimally) or improvement across time (e.g., developing skills). As such, these goals are not inherently social, in the sense that mastery goals define competence in relation to a particular task or within the person. In contrast, *performance goals* define competence in relation to social criteria. When individuals set performance goals, they define competence based on the performance of other people (e.g., being better than other students) or in terms of the desire to demonstrate high ability (e.g., showing high ability relative to others; see reviews by Huang, 2012; Hulleman, Schrager, Bodmann, & Harackiewicz, 2010). As such, these goals require an understanding and recognition of the achievements of others in relation to the self (Möller et al., 2009). In addition, each goal to approach competence can be paired with its negatively valenced complement—to avoid incompetence (Elliot & Church, 1997; Elliot & Harackiewicz, 1996 [based on earlier conceptualizations by McClelland, 1951]). Whereas *mastery-avoidance* goals are focused on preventing skills from dwindling or not missing opportunities to learn, *performance-avoidance* goals are focused on not performing poorly relative to other people (Elliot & McGregor, 2001). Individuals with higher expectancies for success are more likely to adopt approach goals, whereas those with lower expectancies for success are more likely to adopt avoidance goals (Cury, Elliot, Da Fonseca, & Moller, 2006).

The work of Dweck and her colleagues shows that people's beliefs about their abilities can change their goals (Cury et al., 2006; Dweck & Leggett, 1988). When people believe that their abilities are malleable, they are more likely to believe that effort and hard work will result in competence, so they are focused on mastery and can be said to have a growth mindset, whereas, those who believe abilities do not change are more likely to be focused on demonstrating their competence relative to others (e.g., Cury et al., 2006), and/or to seek out information that lets them know how much ability they have

(e.g., Dweck & Leggett, 1988), so they focus on performance goals. Individuals who focus on performance may be more likely to believe that abilities are fixed (and not changeable). When abilities are perceived as fixed, then individuals are focused on demonstrating that they are competent rather than developing competence. Their fixed mindset can become a liability when they face difficulty (Kamins & Dweck, 1999). Research also indicates that beliefs about mindset are associated with the feedback that individuals receive from the environment. For example, children whose caregivers praised them for hard work (rather than for them being smart) were more willing to take on difficult tasks (Kamins & Dweck, 1999).

Given these promising effects, classroom interventions have been developed to encourage students to believe that their abilities can change. In addition, meta-analytic results support the idea that beliefs about the malleability of abilities is associated with more effective self-regulation and goal pursuit (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013). That said, scaling up laboratory manipulations to real-world settings can be challenging. One recent study showed that an online mindset intervention delivered to high school students affected achievement only among students who had a history of low performance (Paunesku et al., 2015). This is an important point for two reasons. First, a mindset intervention might not affect achievement for everyone; however, these data are also consistent with the theory: When students struggle, it is most important they believe their abilities are malleable.

The adoption of achievement goals is usually measured with self-report scales, in which people are asked the extent to which their goals in a given situation reflect the desire to develop skills and to master the activity and/or the desire to perform better than other people. In these studies, goals have been compared across different age groups. In one cross-sectional study, Bong (2009) reported on the assessment of achievement goals among students from first grade through middle school with regard to the domain of math. Overall, these data indicated that elementary school children reported higher levels of achievement goals than did middle school children. There was also variation in the relative level of certain achievement goals over other goals. Specifically, although both younger and older students reported higher approach than avoidance goals, younger students

reported mastery-approach goals (e.g., wanting to learn as much as possible) at a higher level than performance approach goals (e.g., demonstrating high performance relative to other students), and older students showed the opposite pattern. Bong also found that achievement goals were more highly correlated with each other for the younger rather than the older students, suggesting that the younger students may have a general desire to be competent, but also have imprecise ideas about how competence is defined.

It has been suggested that performance goals may peak in middle and high school (Anderman, Austin, & Johnson, 2002) given the increased evaluative focus of higher grade levels in schooling, and the importance of peers and self-other comparisons during adolescence (e.g., Coleman, 1961; Steinberg & Silverberg, 1986). Yet, it turns out that patterns of goal adoption are somewhat idiosyncratic. For example, Anderman and Midgley (1997) reported a decrease in goals focused on mastery from fifth to sixth grade in the domains of both English and math, but a small increase in performance goals in English only, and another study indicated a small decline in all goals from sixth to seventh grade (Middleton, Kaplan, & Midgley, 2004).

Individuals' achievement strivings have been found to vary a lot depending on the content. As children get older, their achievement goals in different subjects become more independent (Bong, 2001), which suggests that they are coming to understand that their desire to be competent in one domain is separate from their desires to be competent in other domains. This is especially pronounced in patterns of mastery goals (Anderman & Midgley, 1997), which are strongly related to interest in specific content. For example, in a study of the relationships among achievement goals in middle school and high school students, the correlations among mastery-approach goals across domains were considerably lower than correlations among performance goals across domains (Bong, 2001). In other words, students who adopted mastery-approach goals in math may or may not have set similar goals in English; meanwhile, those who adopted performance-approach goals in math were quite likely to also adopt performance-approach goals in English.

The desire for mastery (i.e., to learn and to develop skills) in a given subject depends on the content, which may explain why mastery goals

vary by domain to a greater extent than do performance goals. More specifically, the adoption of mastery goals in a given domain may reflect the value of and/or interest in the knowledge and skills that are unique to it (Harackiewicz, Durik, Barron, Linnebrink-Garcia, & Tauer, 2008; Renninger et al., 2008). This has implications for how the achieving self as an agent perceives value and sets goals. When individuals recognize that particular domain content is valuable, they are likely to adopt goals that lead toward the development of knowledge, values, and related skills (Harackiewicz et al., 2008; Hidi & Renninger, 2006; Renninger, 2000).

In summary, the self as an achieving agent is aware of capacities and potential with regard to competence, can recognize desired states of competence that have not yet been attained, and can set goals to move toward those ends. These beliefs and plans can operate across domains, such that general measures of need for achievement as a personality variable predict the adoption of achievement goals in various situations (e.g., Elliot & Church, 1997; Harackiewicz et al., 2008).

Utility Task Value and Cost

Eccles and her colleagues (e.g., Eccles et al., 1983; Eccles & Wigfield, 2002) identify three values that clarify the ways in which task engagement is believed to be worthwhile: utility value, intrinsic value, and attainment value (Eccles et al., 1983; Eccles & Wigfield, 2002).¹ *Utility value* refers to people's perceptions that a task can be instrumental to their ability to achieve other goals. *Intrinsic value* refers to the extent that a given achievement task is enjoyable during task engagement. Finally, *attainment value* refers to the extent that a task is important for an individual's developing identity. Eccles and colleagues' (1983) model has also specified the role of cost in predicting achievement behavior. Examples of cost include effort, anticipated negative emotion, and loss of time for other activities. Whereas the values increase perceptions that task engagement is worthwhile, cost defines the investment required for task en-

¹Whereas initial formulations of the value of achievement directly implicated the likelihood of success (Atkinson, 1974), subsequent models have expanded the view to include qualitatively different values that are related to the task content (Eccles et al., 1983; Feather, 1988).

agement, which decreases perceptions that engagement is worthwhile. These processes work in opposition and are considered in turn.

This section on the developing achievement self as an agent features utility value and cost because both involve awareness of the goals and constraints that surround task engagement (McAdams, 2013). Although the task values are typically thought of together, as variations of the kinds of value (and cost) that tasks offer, they correlate with each other highly (Eccles & Wigfield, 1995), and are sometimes even combined to reflect general value about a domain (e.g., Simpkins, Fredricks, & Eccles, 2012), these values are distinct. The distinctions are brought into focus by the layered self as actor, agent, and author.

Whether a task is perceived to be useful for achieving goals, its utility value, can directly implicate the self as an agent. Perceived utility emerges as a meaningful construct as children develop through elementary school, in part because it requires an understanding of time, which is fairly complex (Wigfield & Cambria, 2010).² As the understanding of time develops, the capacity to realize and follow through to attain goals for the future becomes possible. As Wigfield (1994) pointed out, younger children have difficulty conceptualizing whether a given domain is useful or important to them. It is not surprising therefore that utility of math and science as measured in fifth grade was a weaker predictor of future course taking than was intrinsic value (enjoyment) measured at the same time (Simpkins et al., 2006). By 10th grade, both utility and intrinsic value predicted course taking (Simpkins et al., 2006).

The content of achievement domains is also important. For example, researchers have compared the effectiveness of utility statements that reflect goals that are more intrinsic to the person (i.e., building community) versus extrinsic (e.g., making money; Vansteenkiste et al.,

2004). Utility for internalized goals tends to reveal task engagement that is more sustained and adaptive (Tabachnick, Miller, & Relyea, 2008; Vansteenkiste et al., 2004).

Similarly, individuals who have a deep or well-developed interest in a domain may have a clearer understanding of the practices that are useful for building competence over time (Renninger et al., 2008). Although the ability to consider utility for longer-term goals may emerge in middle childhood, individuals may also recognize and begin setting such goals for themselves earlier in relation to developed interest (Renninger & Hidi, 2002; Renninger et al., 2008), and/or may become more effective at selecting, engaging, and sustaining behaviors that can contribute to goal attainment in the longer term (de Bilde et al., 2011; De Volder & Lens, 1982; Duckworth, Kirby, Tsukayama, Berstein, & Ericsson, 2011; Lens & Gailly, 1980). This additionally suggests that they develop the ability to make effective use of opportunities, or choices (Flowerday & Schraw, 2003; Tabachnick et al., 2008).

Given the promise of utility value, classroom interventions have been developed to encourage students to recognize utility in what they are learning (see review by Durik, Hulleman, & Harackiewicz, 2015). For example, students who have been presented with testimonials from (supposed) peers about the utility of science report that they have more interest in science than those who did not receive information about utility (Gaspard et al., 2015). Students also have been prompted to generate the utility for themselves (e.g., Hulleman & Harackiewicz, 2009), an approach that enables college students from groups that are underrepresented in science to continue enrollment in science classes (e.g., Harackiewicz, Canning, Tibbetts, Priniski, & Hyde, 2016). In general, learners who have lower expectancies for success benefit more from utility value interventions than those with higher expectancies (e.g., Hulleman, Godes, et al., 2010). The interventions rely on the capacity of individuals to identify goals, and to see learning content as a means to achieve them. These effects have emerged among students who are at least high school age, but the effects appear to vary among younger populations (Durik, Schwartz, Schmidt, & Shumow, 2018). It is not yet clear why younger students responded differently to these kinds of manipulations, but it may reflect less clarity in their views of themselves and their futures.

²Understanding of behavior in relation to time increases with age. Future time perspective is an individual difference variable that reflects the extent to which individuals think about their futures, and has been found to change with age (see review by Husman & Lens, 1999). In general, older adolescents are more orientated toward the future than are younger adolescents and better able to understand how choices lead to benefits in the longer term (Ferrari, Nota, & Soresi, 2010; see review by Nurmi, 1991). In contrast, younger adolescents tended to make decisions in the present, with more spontaneity (de Bilde, Vansteenkiste, & Lens, 2011).

The achieving self as an agent considers how choosing a path comes with constraints (McAdams, 2013). *Cost* refers to potential negative consequences that are anticipated as a consequence of engaging in a particular task, a consideration that involves understanding one set of goals can facilitate or hinder progress on other goals. For example, individuals can anticipate negative consequences when tasks require effort (e.g., homework will be difficult), lost opportunities to do other things (e.g., homework takes time away from leisure activities), and negative feelings (e.g., homework can be frustrating) (Flake et al., 2015), which can have a negative influence on engagement (Eccles et al., 1983). In this sense, the achieving self as an agent both acknowledges constraints and makes decisions about whether the value of tasks outweighs their cost.

How individuals think about the value of the tasks in which they engage has been shown to be important. A task that is useful for a valued goal that extends far into the future may be thought as involving a *higher level of construal* (Trope & Liberman, 2010). When tasks are at higher levels of construal, their primary features are salient, which can help to overcome consideration of costs. For example, research on late adolescents and young adults has shown that higher levels of construal yield more effective self-regulation: likelihood of selecting tasks that have long-term benefits, delaying gratification, and persisting through difficulty (Freitas, Gollwitzer, & Trope, 2004). Similarly, college students who viewed school tasks as important, or instrumental, for achieving personally valued future goals were likely to have more effective strategies for self-regulating (Tabachnick et al., 2008). In other words, individuals who identify the utility of long-term goals can also be expected to self-regulate on related tasks in order to achieve.

Although older children have better developed cognitive capacities to understand present and future value, decline in mean levels of utility value are usually observed with increasing age. For example, students' subjective value for various school subjects were found to decline from first through 12th grade (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Watt, 2004) and perceptions of difficulty have been shown to increase as students progress through high school (Watt, 2004). The pattern of these effects varies somewhat by subject area. Whereas students' perceptions of math as important de-

clined as they progressed through elementary school and then leveled off, perceptions that sports are important remained high throughout elementary school and then declined as students progressed through middle and high school (Fredricks & Eccles, 2002). These patterns suggest both that task value decreases across adolescence, and that with increasing age, perceptions and/or beliefs become more differentiated. By adolescence, students are likely to report value, or interest, in one subject and also to recognize a reduction of value in another subject (Frenzel, Pekrun, Dicke, & Goetz, 2012; Renninger, Kensey, Stevens, & Lehman, 2015).

In summary, the achieving self as an agent sets relatively explicit goals in striving for competence. With age, individuals are increasingly able to assess their own competencies, define their desired levels of future competence, and understand the utility value and cost associated with choice. As their capacities develop, the self as an achieving agent becomes more able to identify and self-regulate to become competent.

In the sections that follow, we further suggest that the accomplishments of the achieving self as an agent are facilitated by the achieving self as both an actor and author. Specifically, we note that accomplishment is coordinated with the individual's developing interest in the content.

Development of the Actor Achievement Self

With all of the focus on the agent self, it is important not to forget the actor self. The actor self relies on challenges (e.g., figuring out how to be effective in the immediate environment), which in turn enables the continued development of competence regardless of age. For example, both toddlers and expert basketball players might try to grab a ball without accidentally knocking it away. The actor self is responsive to and energized, but may not be deliberate about setting explicit goals—he or she is busy with attempts at being effective. Evidence for this in part comes from early work that assumed that achievement motives are not consciously accessible (a conceptualization that has been revived more recently; Schultheiss & Brunstein, 2005).

The role of the self as an actor is central to discussion of the development of achievement strivings across the lifespan. Achievement strivings are present in young children's development, before meta-awareness of the self as

an agent is even possible. Interest has been observed in infants and young children, for example, when they repeatedly attend to and reach for objects (e.g., Langsdorf, Izard, Rayias, & Hembree, 1983; Renninger, 1990). Their interactions with the environment contribute to developing competence (e.g., language and motor skills development), even though their achievement goals are not articulated in an explicit fashion. Bertenthal (1996) describes young learners as having very basic sensory and motor tendencies. These tendencies have been described as being fueled by *effectance motivation*, the self-rewarding motive to have an impact on the environment (McClelland et al., 1989; White, 1959). Feelings of competence that initially are considered to be implicit and later become more explicit support the experience of interest (Deci & Ryan, 1985; Vallerand & Reid, 1984). This is similar to discussion of exploration as an initial approach to understanding new content (Renninger, 2010).

Interest inherently engages the self as an actor (Renninger & Hidi, 2016), which may mean that during engagement a person is not reflectively aware of the self (as an agent; Plant & Ryan, 1985). Even adults can become so immersed in activity that they lose track of more abstract concepts such as time and the self (Dietrich, 2004), as occurs when intrinsically motivated behavior reaches the state of psychological flow (Csikszentmihalyi, 1990). As such, achievement strivings that involve the actor self may not be captured directly in measures that ask individuals to reflect on their experience and report on it. Researchers have directly observed individuals' choices to engage in activities, and when other reasons for engagement were not present, have suggested that the experience itself was inherently rewarding or interesting (e.g., Deci & Ryan, 1985; Lepper, Greene, & Nisbett, 1973).

Considerable research has tracked individuals' reports about their interest during task engagement (see review in Renninger & Hidi, 2016), and suggests that while the phenomena of interest characterizes individuals of a wide range of ages, there are differences across the lifespan as well. For example, using self-reported measures of task value, Wigfield and Cambria (2010) report that intrinsic value (individuals' recognition that they like a subject, and find it interesting and not boring) may be more salient to young children than are other

task values, such as utility. Younger children tend to focus on enjoyment and fun when describing activities that are meaningful to them. For example, fifth graders were more likely to mention emotional experiences when discussing their interest in math relative to ninth graders, who reflected more on their behaviors and their recognition of choosing these activities for autonomous reasons (Frenzel et al., 2012).

Although interest, as both a psychological state and motivational variable, informs the agent, actor, and author selves, the agent self may not be self-aware when engaged. Interested individuals may engage in achievement strivings even though their goals are not explicit, and may underreport their interest if asked about it—especially if their interest is new and their interest is not yet developed. Once engaged, those with interest in the task are likely to regulate and persist in the activity, despite its cost (Sansone, 2009).

In summary, the actor self is relevant when individuals respond to challenges and become involved in content in the moment of task engagement. The agent self may guide individuals back to these situations as they become aware of feeling competent, setting explicit goals, and perceiving the value of what they are doing. Although these achievement strivings are different, they can work in concert. Finally, as individuals develop an interest in content, the author self may help individuals realize the importance of content for identity (Renninger, 2009).

Jason's Layered Self

Jason's interests in both ecology as a career and birding as a hobby are mutually reinforcing (Azevedo, 2013). His implicit and explicit achievement strivings facilitate his engagement in both and allow him to weave a coherent sense of self.

Jason as an Achieving Agent

Jason is aware of his competence as an ecologist, sets achievement goals, and perceives his work in ecology as including both utility and certain costs. When asked about his goals as an ecologist, Jason indicated that he wanted to understand how communities of organisms interact with each other and their environments. He wants to know why certain species exist where

they do, and why they cannot be found in other places. As he observed, he is asking the same basic questions about ecology that intrigued him when he was a teenager. His goals for research reflected a desire for mastery, as well as performance. He is interested in particular questions (although it is increasingly nuanced versions of these questions) and his position as an ecologist allows him to continue seeking deeper understanding.

He also wants to publish in reputable journals and be known as an expert. These achievements are useful for his continued development; he sees it as helping him be in contact with people who are doing interesting things, which facilitates his learning and also provides opportunities for his students. As a researcher, he values contributing to science, although he also recognizes an avoidance goal (the goal of not leaving out an important chunk of the literature in publications and presentations). Yet the value comes with certain costs and the need to generate strategies to minimize them. As he explained, “The field component of my work is often hot and uncomfortable, and you’re covered in bugs and getting wet. If I’m doing fieldwork, I do as much as I can in the shortest time possible.”

As a young scholar, he sees his career as being on track, but he still has many goals for himself. He wants to make a larger contribution to the field and feels as though growing his laboratory and working with more students will help make this happen. He wants to develop a network of students with whom he can collaborate and who can collaborate with each other.

Jason as an Achieving Actor

Jason’s goals for birding are different from his goals as an ecologist. His main goal is to be able to go birding more often. When prompted to explain his goals for a particular birding outing, he describes them as tied to what the environment could offer and the strategies he planned to use. He said that birding in the autumn is different from birding in the summer because the strategies he uses to find rare birds vary depending on the season. Changes in the environment and the need to be sensitive to these changes are part of the challenge, and also what he loves, about birding. Although his planning for the trip constitutes explicit goals, once he is out bird watching, he says that he just “uses his eyes and

ears.” In other words, his goals during birding are more implicit; they are not planned ahead of time. Rather, he engages the rewards that accompany his interest in the pursuit of rare birds, which enables engagement with challenges that are absorbing and satisfying, and possibly the absence of an agent self.

Jason recalls his early experiences with birding as a child. He says that he “got into” birds just by picking up binoculars and a field guide when he was 8 years old. He described this almost as though it was not a deliberate decision, but instead something that seemed to just happen. He remembers that his interest was triggered by a male hummingbird that used to perch on a tree just outside the window of the cabin that his family used to visit during the summer. He said that he would drag a child-size folding chair outside to sit and watch the bird. He became so absorbed in his observations that he got lost in time. He described himself as watching the bird for hours.

Jason’s interest in birding led him to spend time outside, learning about species and the environment, and he also spent time reading about birds and bird habitats. Without question, these are achievement behaviors, but in these moments, he was an actor. The activity and environment guided his interactions and responses. It also appears that the knowledge he acquired not only provided a foundation for his continued interest in birds but also laid the groundwork for his later interest in and career in ecology.

Jason as an Achieving Author

Jason reflected on how his interest in birding and his career in ecology were related. He indicated that he was interested in birding from a very young age, but as he moved through high school, he realized that science might be a direction for his career. He first considered the possibility of becoming an ecologist when, as a high school student, he participated in field research on bird ecology at summer camp. He recounts realizing that his interest in birds might also be a meaningful career as a “bridge moment.” Later, however, he discovered that his interest in ecology was not well suited for studying birds. The research questions that interested him in ecology (e.g., why certain species live in some habitats and not others) were better studied in species besides birds (i.e., species that do not migrate huge distances). As such, he now

studies why certain insects (e.g., beetles) are attracted to certain sections of a habitat and not others, and considers ecology his career and birding his hobby.

In summary, Jason is interested in both birding and ecology. When interacting with domain content, he becomes deeply absorbed and engaged, highlighting the experience of the achieving self as an actor. In addition, and over time, with environmental supports, he has come to recognize his commitment to and aspirations within these content areas. This has allowed him to set explicit goals, as an agent, and to perceive opportunities for continued development in each. Finally, Jason as an author self is in a position to report on choices and goals that were in service of the cultivation of these interests, and to realize how these strivings shaped the years and decades that make up a life.

Individual Interest: The Coherent Self as Agent, Actor, and Author

The three layers of psychological selfhood can be understood to operate independently. For example, an individual might set a goal as an agent that does not engage the actor self or contribute meaning to the author self. It also appears that coordination of achievement strivings is also possible, and that there may be benefits to coordination (see Sheldon & Elliot, 1999).

The benefits come into focus when considering the opposite: achievement strivings as an agent without the presence of interest at the layers of actor and author. Individuals who strive for achievement in domains (e.g., the goal of becoming a nurse) in which they do not get deeply involved as an actor (e.g., disliking biology and chemistry) are going to find it very difficult to stay on track. They will need to invest extensive self-regulatory resources in order to persist and attain their goals (Renninger, Sansone, & Smith, 2004; Sansone & Thoman, 2005). Although it might be possible to achieve explicit goals in the absence of interest, the experience of interest can help individuals to initiate goal-directed behavior and remain task-focused once engaged (Lipstein & Renninger, 2007; O'Keefe & Linnenbrink-Garcia, 2014; Sansone & Harackiewicz, 1996; Sansone, Thoman, & Fraughton, 2015; Sansone, Weir, Harpster, & Morgan, 1992). In general, goals that are not accompanied by the experience of interest at the actor level are likely to be abandoned if individuals do

not have sufficient motivation for achievement and self-control at a general level (e.g., McCrae & Costa, 1997; Murray, 1938). The absence of the recognition of an interest at the author level also presents a vulnerability. For example, even if individuals manage to achieve the goals set by the agent self, if they lack the passion or perceived meaning, they might reflect on the time invested as fruitless.

People are hardwired for interest; the triggering of interest activates the reward circuitry (see review in Renninger & Hidi, 2016). As an actor, interest is central to a coherent sense of self and meaning. However, the experience of interest is not sufficient. Individuals who experience interest in the moment and get deeply involved in content as an actor may be especially likely in the long term to set goals. However, if individuals never engage the agent self, they may not recognize the implications of success (e.g., high school students so immersed in video games might not know where their lives are headed) (Covington, 1984; Harter, 1999). Recognizing one's own agency in bringing about success may be an important contributor to feelings of self-worth and satisfaction (Covington, 1984; Harter, 1999).

Jason's interests in bird watching and in ecology illustrate this coordination. For example, Jason's interest in birding allows him to recognize that he can set goals, and to have knowledge about why he likes birding and how he goes about doing it. In response to the question, "What do you like about birds?" he first reformulated the question to clarify an important difference to him: the difference between birds and birding. He first clarified that birds, as objects, are amazing creatures. Then, he went on to say that what he really liked was the experience of finding them. He liked using his knowledge of birds and ecology in order to predict where they might be, then to see what could be observed. In this sense, he had a very clear understanding of his goals.

Jason also sees how his hobby is informed by his training as an ecologist. While out watching birds, he remembers what he sees, then goes home and enters his sightings into a huge, public database. He likes to be contributing data that will be useful for people like himself, but who are more bird-focused in their research. He values this because it is not only a way for him to keep track of what he has seen, but it also affirms the scientist in him. Similarly, his interest in birds can help him to self-regulate despite the

costs he associates with fieldwork. Jason notes that when he is working in the field and covered with bugs, he sometimes notices “a nice little bird nearby singing” at him, and this makes the bugs involved in collecting field data more tolerable.

Jason’s achieving self as an author can also be identified. He describes himself as having a general hope of what he might find when he goes out to watch birds, and explains that sometimes this is thwarted. He says it can be disappointing, although as he has aged, he also has come to appreciate that even though he might not have seen the bird he was hoping to see, he may still have gotten a better look at another species.

As these examples suggest, understanding the achieving self in relation to interest and its development is critical. Interest is a psychological state during engagement and the actor, agent, and/or author’s experiences (the knowledge building and coordinated valuing) of interest influence implicit as well as explicit goals, across multiple ages. The actor self gets deeply engaged repeatedly across time, the agent self can organize efforts and goals for future opportunities, and then the author self makes meaning from these otherwise fragmented experiences and strivings.

Concluding Thoughts

In this chapter, using McAdams’s (2013) framework of the layered psychological self, we have provided an overview of what is presently understood about how achievement strivings develop and change across the lifespan. We explain that achievement strivings historically have been examined as both explicit (agent self) and implicit (actor self) because competence develops in both ways. The framework of the layered psychological self suggests that considering implicit along with explicit goals provides a more nuanced and broader description of achievement strivings.

It appears that competence strivings co-occur somewhat differently based on age, experience, and interest. Even though the agent self emerges later in development than the actor self, the actor self can emerge spontaneously at any point, if the content is of interest. The actor self may be especially relevant when the content is new for individuals, and if an individual is deeply engaged, interest may obscure explicit

goals, which means that connections to the self as an author may not be predictable.

Strivings toward competence are both implicit and explicit, all of which move individuals toward being more effective in their environments. This analysis suggests that the same explicit goal might be engaged very differently, depending on the presence or absence of interest. We suggest that researchers may gain traction in being able to predict achievement behavior by considering its relation to interest and the ways in which the aspects of the psychological self are coordinated around particular content.

REFERENCES

- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*(3), 261–271.
- Anderman, E. M., Austin, C. C., & Johnson, D. M. (2002). The development of goal orientation. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 197–220). San Diego, CA: Academic Press.
- Anderman, E. M., & Midgley, C. (1997). Changes in achievement goal orientations, perceived academic competence, and grades across the transition to middle-level schools. *Contemporary Educational Psychology, 22*, 269–298.
- Atkinson, J. W. (1974). The mainsprings of achievement-oriented activity. In J. W. Atkinson & J. O. Raynor (Eds.), *Motivation and achievement* (pp. 11–39). Washington, DC: Winston.
- Azevedo, F. S. (2013). Knowing the stability of model rockets: An investigation of learning in interest-based practices. *Cognition and Instruction, 31*, 345–374.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development, 49*, 193–224.
- Barron, K. E., & Harackiewicz, J. M. (2001). Achievement goals and optimal motivation: Testing multiple goal models. *Journal of Personality and Social Psychology, 80*, 706–722.
- Bempechat, J., London, P., & Dweck, C. S. (1991). Children’s conceptions of ability in major domains: An interview and experimental study. *Child Study Journal, 21*, 11–36.
- Bertenthal, B. I. (1996). Origins and early development of perception, action, and representation. *Annual Review of Psychology, 47*, 431–459.
- Bong, M. (2001). Between- and within-domain relations of academic motivation among middle and

- high school students: Self-efficacy, task-value, and achievement goals. *Journal of Educational Psychology*, 93, 23–34.
- Bong, M. (2009). Age-related differences in achievement goal differentiation. *Journal of Educational Psychology*, 101, 879–896.
- Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollock, J. M., & Finkel, E. J. (2013). Mind-sets matter: A meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin*, 139, 655–701.
- Coleman, J. (1961). *The adolescent society*. Glencoe, IL: Free Press.
- Covington, M. V. (1984). The self-worth theory of achievement motivation: Findings and implications. *Elementary School Journal*, 85, 5–20.
- Covington, M. V. (1999). Caring about learning: The nature and nurturing of subject matter appreciation. *Educational Psychologist*, 34, 127–136.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Row.
- Cury, F., Elliot, A. J., Da Fonseca, D., & Moller, A. C. (2006). The social-cognitive model of achievement motivation and the 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology*, 90(4), 666–679.
- de Bilde, J., Vansteenkiste, M., & Lens, W. (2011). Understanding the association between future time perspective and self-regulated learning through the lens of self-determination theory. *Learning and Instruction*, 21, 332–344.
- De Fraine, B., Van Damme, J., & Onghena, P. (2007). A longitudinal analysis of gender differences in academic self-concept and language achievement: A multivariate multilevel latent growth approach. *Contemporary Educational Psychology*, 32, 132–150.
- De Volder, M. L., & Lens, W. W. (1982). Academic achievement and future time perspective as a cognitive–motivational concept. *Journal of Personality and Social Psychology*, 42, 566–571.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.
- Dietrich, A. (2004). Neurocognitive mechanisms underlying the experience of flow. *Consciousness and Cognition*, 13, 746–761.
- Duckworth, A. L., Kirby, T., Tsukayama, E., Berstein, H., & Ericsson, K. A. (2011). Deliberate practice spells success: Why grittier competitors triumph at the National Spelling Bee. *Social Psychological and Personality Science*, 2, 174–181.
- Durik, A. M., Hulleman, C. S., & Harackiewicz, J. M. (2015). One size fits some: Instructional enhancements to promote interest. In K. A. Renninger & M. Nieswandt (Eds.), *Interest, the self, and K–16 mathematics and science learning* (pp. 49–62). Washington, DC: American Educational Research Association.
- Durik, A. M., Schwartz, J., Schmidt, J. A., & Shumow, L. (2018). Age differences in effects of self-generated utility among black and Hispanic adolescents. *Journal of Applied Developmental Psychology*, 54, 60–68.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95, 256–273.
- Eccles, J., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., et al. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motives: Psychological and sociological approaches* (pp. 75–146). San Francisco: Freeman.
- 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, 215–220.
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53, 109–132.
- Elliot, A. J. (2005). A conceptual history of the achievement goal construct. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 52–72). New York: Guilford Press.
- Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, 72, 218–232.
- Elliot, A. J., Dweck, C. S., & Yeager, D. S. (2017). Competence and motivation: Theory and application. In E. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation: Theory and application* (2nd ed., pp. 3–8). New York: Guilford Press.
- Elliot, A. J., & Fryer, J. (2008). The goal construct in psychology. In J. Y. Shah & W. L. Gardner (Eds.), *Handbook of motivation science* (pp. 235–250). New York: Guilford Press.
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology*, 70, 461–475.
- Elliot, A. J., & McGregor, H. A. (2001). A 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology*, 80, 501–519.
- Feather, N. T. (1988). Values, valences, and course enrollment: Testing the role of personal values within an expectancy-value framework. *Journal of Educational Psychology*, 80, 381–391.
- Ferrari, L., Nota, L., & Soresi, S. (2010). Time perspective and indecision in young and older adolescents. *British Journal of Guidance and Counselling*, 38, 61–82.
- Fineman, S. (1977). The achievement motive construct and its measurement: Where are we now? *British Journal of Psychology*, 68, 1–22.
- Flake, J. K., Barron, K. E., Hulleman, C., McCoach, B. D., & Welsh, M. E. (2015). Measuring cost: The forgotten component of expectancy-value theory. *Contemporary Educational Psychology*, 41, 232–244.
- Flowerday, T., & Schraw, G. (2003). Effect of choice on

- cognitive and affective engagement. *Journal of Educational Research*, 96, 207–215.
- Fredricks, J. A., & Eccles, J. S. (2002). Children's competence and value beliefs from childhood through adolescence: Growth trajectories in two male-sex-typed domains. *Developmental Psychology*, 38, 519–533.
- Freitas, A. L., Gollwitzer, P., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *Journal of Experimental Social Psychology*, 40, 739–752.
- Frenzel, A. C., Pekrun, R., Dicke, A., & Goetz, T. (2012). Beyond quantitative decline: Conceptual shifts in adolescents' development of interest in mathematics. *Developmental Psychology*, 48, 1069–1082.
- Gaspard, H., Dicke, A.-L., Flunger, B., Brisson, B. M., Häfner, I., Nagengast, B., et al. (2015). Fostering adolescents' value beliefs for mathematics with a relevance intervention in the classroom. *Developmental Psychology*, 51, 1226–1240.
- Gniewosz, B., Eccles, J. S., & Noack, P. (2015). Early adolescents' development of academic self-concept and intrinsic task value: The role of contextual feedback. *Journal of Research on Adolescence*, 25, 459–473.
- Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Prinski, 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, 745–765.
- Harackiewicz, J. M., Durik, A. M., Barron, K. E., Linenbrink-Garcia, L., & Tauer, J. M. (2008). The role of achievement goals in the development of interest: Reciprocal relations between achievement goals, interest and performance. *Journal of Educational Psychology*, 100(1), 105–122.
- Harackiewicz, J. M., & Sansone, C. (1991). Goals and intrinsic motivation: You can get there from here. In M. Maehr & P. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 7, pp. 21–49). Greenwich, CT: JAI Press.
- Harter, S. (1986). Cognitive-developmental processes in the integration of concepts about emotions and the self. *Social Cognition*, 4, 119–151.
- Harter, S. (1999). *The construction of the self: A developmental perspective*. New York: Guilford Press.
- Harter, S. (2003). The development of self-representations during childhood and adolescence. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 610–642). New York: Guilford Press.
- Harter, S. (2006). The self. In N. Eisenberg (Ed.) & W. Damon & R. M. Lerner (Series Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (pp. 505–570). New York: Wiley.
- Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist*, 41(2), 111–127.
- Hofer, M., & Fries, S. (2016). A multiple goals perspective on academic motivation. In K. R. Wentzel & D. B. Miele (Eds.), *Handbook of motivation at school* (2nd ed., pp. 440–458). New York: Routledge.
- Huang, C. (2012). Discriminant and criterion-related validity of achievement goals in predicting academic achievement: A meta-analysis. *Journal of Educational Psychology*, 104, 48–73.
- Hulleman, C. S., Godes, O., Hendricks, B. L., & Harackiewicz, J. M. (2010). Enhancing interest and performance with a utility value intervention. *Journal of Educational Psychology*, 102, 880–895.
- Hulleman, C. S., & Harackiewicz, J. M. (2009). Promoting interest and performance in high school science classes. *Science*, 326, 1410–1412.
- Hulleman, C. S., Schrage, S. M., Bodmann, S. M., & Harackiewicz, J. M. (2010). A meta-analytic review of achievement goal measures: Different labels for the same constructs or different constructs with similar labels? *Psychological Bulletin*, 136, 422–449.
- Husman, J., & Lens, W. (1999). The role of the future in student motivation. *Educational Psychologist*, 34, 113–125.
- Jackson, D. N. (1974). *Personality Research Form manual*. Goshen, NY: Research Psychologists Press.
- Jacobs, J. E., Lanza, S., Osgood, D. W., Eccles, J. S., & Wigfield, A. (2002). Changes in children's self-competence and values: Gender and domain differences across grades one through twelve. *Child Development*, 73, 509–527.
- Kamins, M. L., & Dweck, C. S. (1999). Person versus process praise and criticism: Implications for contingent self-worth and coping. *Developmental Psychology*, 35, 835–847.
- Krapp, A. (2002). An educational-psychological theory of interest and its relation to SDT. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 405–427). Rochester, NY: University of Rochester Press.
- Langsdorf, P., Izard, C. E., Rayias, M., & Hembree, E. A. (1983). Interest expression, visual fixation, and heart rate changes in 2- to 8-month-old infants. *Developmental Psychology*, 19, 375–386.
- Lens, W., & Gailly, A. (1980). Extension of future time perspective in motivational goals of different age groups. *International Journal of Behavioral Development*, 3, 1–17.
- Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology*, 28, 129–137.
- Lipstein, R., & Renninger, K. A. (2007). "Putting things into words": The development of 12–15-year-old students' interest for writing. In P. Boscolo & S. Hidi (Eds.), *Motivation and writing: Research and school practice* (pp. 113–140). New York: Elsevier.
- Liu, W. C., Wang, C. K. J., & Parkins, E. J. (2005). A longitudinal study of students' academic self-concept in

- a streamed setting: The Singapore context. *British Journal of Educational Psychology*, 75, 567–586.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Upper Saddle River, NJ: Prentice Hall.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goals setting and task motivation. *American Psychologist*, 37, 705–717.
- Marsh, H. W. (1989). Age and sex effects in multiple dimensions of self-concept: Preadolescence to early-adulthood. *Journal of Educational Psychology*, 81, 417–430.
- Marsh, H. W., Craven, R. G., & Debus, R. (1991). Self-concepts of young children aged 5 to 8: Their measurement and multidimensional structure. *Journal of Educational Psychology*, 83, 377–392.
- Marsh, H. W., Ellis, L. A., & Craven, R. G. (2002). How do preschool children feel about themselves?: Unraveling measurement and multidimensional self-concept structure. *Developmental Psychology*, 38, 376–393.
- McAdams, D. P. (2013). The psychological self as actor, agent, and author. *Psychological Science*, 8, 272–295.
- McClelland, D. C. (1951). Measuring motivation in phantasy: The achievement motive. In H. Guetzkow (Ed.), *Groups, leadership, and men* (pp. 191–205). Pittsburgh, PA: Carnegie Press.
- McClelland, D. C. (1985). *Human motivation*. Glenview, IL: Scott, Foresman.
- McClelland, D. C., Clark, R. A., Roby, T. B., & Atkinson, J. W. (1949). The projective expression of needs: IV. The effect of the need for achievement on thematic apperception. *Journal of Experimental Psychology*, 39, 242–255.
- McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ? *Psychological Review*, 96, 690–702.
- McCrae, R. R., & Costa, P. T., Jr. (1997). Personality trait structure as a human universal. *American Psychologist*, 52, 509–516.
- Middleton, M. J., Kaplan, A., & Midgley, C. (2004). The change in middle school students' achievement goals in mathematics over time. *Social Psychology of Education*, 7, 289–311.
- Möller, J., Pohlmann, B., Köller, O., & Marsh, H. W. (2009). Meta-analytic path analysis of the internal/external frame of reference model of academic achievement and academic self-concept. *Review of Educational Research*, 79, 1129–1167.
- Murray, H. A. (1938). *Explorations in personality*. New York: Oxford University Press.
- Nicholls, J. G. (1979). Development of perception of own attainment and causal attributions for success and failure in reading. *Journal of Educational Psychology*, 71, 94–99.
- Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, 91, 328–346.
- Nurmi, J. E. (1991). How do adolescents see their future?: A review of the development of future orientation and planning. *Developmental Review*, 11, 1–59.
- Nuttin, J., & Lens, W. (1985). *Future time perspective and motivation: Theory and research method*. Leuven, Belgium/Hillsdale, NJ: Leuven University Press/Erlbaum.
- O'Keefe, P. A., & Linnenbrink-Garcia, L. (2014). The role of interest in optimizing performance and self-regulation. *Journal of Experimental Social Psychology*, 53, 70–78.
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66, 543–578.
- Panksepp, J. (1988). *Affective neuroscience: The foundations of human and animal emotion*. New York: Oxford University Press.
- Paunesku, D., Walton, G. M., Romero, C., Smith, E. N., Yeager, D. S., & Dweck, C. S. (2015). Mind-set interventions are a scalable treatment for academic underachievement. *Psychological Science*, 26, 784–793.
- Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of Educational Psychology*, 92, 544–555.
- Plant, R. W., & Ryan, R. M. (1985). Intrinsic motivation and the effects of self-consciousness, self-awareness, and ego-involvement: An investigation of internally controlling styles. *Journal of Personality*, 53(3), 435–449.
- Renninger, K. A. (1990). Children's play interests, representation, and activity. In R. Fivush & K. Hudson (Eds.), *Knowing and remembering in young children* (pp. 127–165). New York: Cambridge University Press.
- Renninger, K. A. (2000). Individual interest and its implications for understanding intrinsic motivation. In C. Sansone & J. M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation: The search for optimal motivation and performance* (pp. 373–404). San Diego, CA: Academic Press.
- Renninger, K. A. (2009). Interest and identity development in instruction: An inductive model. *Educational Psychologist*, 44, 105–118.
- Renninger, K. A. (2010). Working with and cultivating the development of interest, self-efficacy, and self-regulation. In D. Preiss & R. Sternberg (Eds.), *Innovations in educational psychology: Perspectives on learning, teaching and human development* (pp. 107–138). New York: Springer.
- Renninger, K. A., Bachrach, J. E., & Posey, S. K. E. (2008). Learner interest and achievement motivation. In M. L. Maehr, S. A. Karabenick, & T. C. Urdan (Eds.), *Advances in motivation and achievement: Vol. 15. Social psychological perspectives* (pp. 461–491). Derby, UK: Emerald Group.
- Renninger, K. A., & Hidi, S. (2002). Student interest and achievement: Developmental issues raised by a case study. In A. Wigfield & J. S. Eccles (Eds.), *De-*

- velopment of achievement motivation (pp. 173–195). San Diego, CA: Academic Press.
- Renninger, K. A., & Hidi, S. E. (2016). *The power of interest for motivation and engagement*. New York: Routledge.
- Renninger, K. A., Kensey, C. C., Stevens, S. J., & Lehman, D. L. (2015). Perceptions of science and their role in the development of interest. In K. A. Renninger, M. Nieswandt, & S. Hidi (Eds.), *Interest in mathematics and science learning* (pp. 93–110). Washington, DC: American Educational Research Association.
- Renninger, K. A., Sansone, C., & Smith, J. L. (2004). Love of learning. In C. Peterson & M. E. P. Seligman (Eds.), *Character strengths and virtues: A classification and handbook* (pp. 161–179). New York: Oxford University Press.
- Sansone, C. (2009). What's interest got to do with it?: Potential trade-offs in the self-regulation of motivation. In J. P. Forgas, R. Baumier, & D. Tice (Eds.), *Psychology of self-regulation: Cognitive, affective, and motivational processes* (pp. 35–51). New York: Psychology Press.
- Sansone, C., & Harackiewicz, J. M. (1996). I don't feel like it: The function of interest in self-regulation. In L. Martin & A. Tesser (Eds.), *Striving and feeling: The interaction of goals and affect* (pp. 203–228). Hillsdale, NJ: Erlbaum.
- Sansone, C., & Thoman, D. B. (2005). Interest as the missing motivator in self-regulation. *European Psychologist, 10*, 175–186.
- Sansone, C., Thoman, D., & Fraughton, T. (2015). The relation between interest and self-regulation in mathematics and science. In K. A. Renninger, M. Nieswandt, & S. Hidi, (Eds.), *Interest in mathematics and science learning* (pp. 111–131). Washington, DC: American Educational Research Association.
- Sansone, C., Weir, C., Harpster, L., & Morgan, C. (1992). Once a boring task always a boring task?: Interest as a self-regulatory mechanism. *Journal of Personality and Social Psychology, 63*, 379–390.
- Schiefele, U. (1991). Interest, learning, and motivation. *Educational Psychologist, 26*, 299–323.
- Schultheiss, O. C., & Brunstein, J. C. (2005). An implicit motive perspective on competence. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 31–51). New York: Guilford Press.
- Schunk, D. H. (1995). Self-efficacy and education and instruction. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 281–303). New York: Plenum Press.
- Schunk, D. H., & Pajares, F. (2002). The development of academic self-efficacy. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 15–31). San Diego, CA: Academic Press.
- Senko, C. (2016). Achievement goal theory: A story of early promises, eventual discords, and future possibilities. In K. Wentzel & D. Miele (Eds.), *Handbook of motivation at school* (Vol. 2, pp. 75–95). New York: Routledge.
- Shechter, O. G., Durik, A. M., Miyamoto, Y., & Harackiewicz, J. M. (2011). The role of utility value in achievement behavior: The importance of culture. *Personality and Social Psychology Bulletin, 37*, 303–317.
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology, 76*, 482–497.
- Silvia, P. J. (2006). *Exploring the psychology of interest*. New York: Oxford University Press.
- 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*, 70–83.
- Simpkins, S. D., Fredricks, J. A., & Eccles, J. S. (2012). Charting the Eccles' Expectancy-Value Model from mothers' beliefs in childhood to youths' activities in adolescence. *Developmental Psychology, 48*, 1019–1032.
- Spence, J. T., & Helmreich, R. L. (1983). Achievement-related motives and behaviors. In J. T. Spence (Ed.), *Achievement and achievement motives: Psychological and sociological approaches* (pp. 7–74). San Francisco: Freeman.
- Steinberg, L., & Silverberg, S. B. (1986). The vicissitudes of autonomy in early adolescence. *Child Development, 57*, 841–851.
- Stipek, D. J., & Mac Iver, D. M. (1989). Developmental changes in children's assessment of intellectual competence. *Child Development, 60*, 521–538.
- Stipek, D. J., Recchia, S., & McClintic, S. (1992). Self-evaluation in young children. *Monograph of the Society for Research in Child Development, 57*(1, Serial No. 226), 1–98.
- Tabachnick, S. E., Miller, R. B., & Relyea, G. E. (2008). The relationships among students' future-oriented goals and subgoals, perceived task instrumentality, and task-oriented self-regulation strategies in an academic environment. *Journal of Educational Psychology, 100*, 629–642.
- Tolman, E. C. (1932). *Purposive behavior in animals and men*. New York: Appleton-Century.
- Tomkins, S. S. (1947). *The Thematic Apperception Test*. New York: Grune & Stratton.
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review, 117*, 440–442.
- Urdu, T., & Schoenfelder, E. (2006). Classroom effects on student motivation: Goal structures, social relationships, and competence beliefs. *Journal of School Psychology, 44*, 331–349.
- Usher, E. L. (2016). Personal capability beliefs. In L. Corno & E. M. Anderman (Eds.), *Handbook of educational psychology* (3rd ed., pp. 146–159). New York: Routledge.
- Vallerand, R. J., & Reid, G. (1984). On the causal effects of perceived competence on intrinsic motivation: A

- test of cognitive evaluation theory. *Journal of Sport Psychology*, 6, 94–102.
- Vansteenkiste, M., Simons, J., Lens, W., Soenens, B., Matos, L., & Lacante, M. (2004). Less is sometimes more: Goal content matters. *Journal of Educational Psychology*, 96, 755–764.
- Vroom, V. H. (1964). *Work and motivation*. New York: Wiley.
- Walton, G. M., Cohen, G. L., Cwir, D., & Spencer, S. J. (2012). Mere belonging: The power of social connections. *Journal of Personality and Social Psychology*, 102, 513–532.
- Walton, G. M., Logel, C., Peach, J. M., Spencer, S. J., & Zanna, M. P. (2015). Two brief interventions to mitigate a “chilly climate” transform women’s experience, relationships, and achievement in engineering. *Journal of Educational Psychology*, 107, 468–485.
- Watt, H. M. G. (2004). Development of adolescents’ self-perceptions, values, and task perceptions according to gender and domain in 7th through 11th grade Australian students. *Child Development*, 75, 1556–1574.
- White, R. H. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, 66, 297–333.
- Wigfield, A. (1994). Expectancy–value theory of achievement motivation: A developmental perspective. *Educational Psychology Review*, 6, 49–78.
- Wigfield, A., & Cambria, J. (2010). Students’ achievement values, goal orientations, and interest: Definitions, development, and relations to achievement outcomes. *Developmental Review*, 30, 1–35.
- Wigfield, A., & Eccles, J. S. (2002). The development of competence beliefs, expectancies for success, and achievement values from childhood through adolescence. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 92–120). San Diego, CA: Academic Press.
- Wigfield, A., Eccles, J. S., Yoon, K. S., Harold, R. D., Arbreton, A. J. A., Freedman-Doan, C., et al. (1997). Change in children’s competence beliefs and subjective task value across the elementary school years: A 3-year study. *Journal of Educational Psychology*, 89, 451–469.
- Yeager, D. S., Romero, C., Paunesku, D., Hulleman, C. S., Schneider, B., Hinojosa, C., et al. (2016). Using design thinking to improve psychological interventions: The case of the growth mindset during the transition to high school. *Journal of Educational Psychology*, 108, 374–391.