A Developmental, Person-Centered Approach to Exploring Multiple Motivational Pathways in Gifted Underachievement

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Research on underachieving gifted students has uncovered a large number of characteristics differentiating gifted underachieving and achieving students. However, less is known about the way in which underachievement develops across schooling. Using a person-centered theoretical framework and key constructs from current motivational theories, we propose that there are multiple developmental trajectories in underachievement that arise from early school experiences. Two primary pathways are proposed: (a) a Maladaptive Competence Beliefs Pathway whereby underachievement results from the development of particular beliefs about giftedness and maladaptive coping behaviors, and (b) a Declining Value Beliefs Pathway in which underachievement develops from declining value beliefs and increasing perceptions of costs associated with academics. Avenues for future empirical research with these pathways are discussed.

The phenomenon of exceptionally talented individuals who ultimately fail to achieve has long interested educators and researchers (e.g., Hollingworth, 1942; Rubenstein, Siegle, Reis, McCoach, & Burton, 2012; Whitmore, 1980). Underachievement in gifted students is most commonly defined as a significant discrepancy between an individual’s exceptional ability and actual achievement (Reis & McCoach, 2000). Underachieving gifted students and gifted students who appear unmotivated may be less likely to be identified as gifted and receive important educational services (Endepohls-Ulpe & Ruf, 2005). Given both the societal and personal consequences of underachievement, research on the phenomenon has been regarded as a top priority within gifted education (Renzulli, Reid, & Gubbins, 1992).

Some prior research has posited that underachievement among the gifted stems from a general lack of motivation or value for academics (e.g., Baslanti & McCoach, 2006; Ford, Alber, & Heward, 2005; Whitmore, 1986), triggered by an unchallenging academic curriculum (Kanevsky & Keighley, 2003; Rea, 2000). Accordingly, underachievement should be reduced, and motivation enhanced, by placing the student in a challenging environment. However, some gifted students do not benefit from or seek out academic challenge (Moon, Swift, & Shallenberger, 2002). Further, although motivation is indeed a factor in underachievement, it is likely more than a simple lack of motivation (Dai, Moon, & Feldhusen, 1998; Middleton & Toluk, 1999). Using terms such as “motivated” and “unmotivated” assumes that motivation falls along a single dimension, a perspective that fails to capture the complexity of modern motivational theories (Linnenbrink & Pintrich, 2002; Patrick, Gentry, & Owen, 2006). Moving beyond a conceptualization of underachievement as a deficit of motivation will enhance the exploration of the rich motivational processes that synergistically combine to support or undermine academic achievement. We can also further our understanding of underachievement by shifting away from a focus on mean-level differences between underachieving and achieving students at a single time point.
toward the examination of different developmental trajectories and patterns of motivational beliefs, academic behaviors, and underachievement across time. Thus, we aim to provide a more nuanced perspective on underachievement by synthesizing across motivational constructs to consider multiple pathways in underachievement.

A consideration of several alternative developmental trajectories is in line with prior research on multiple pathways and profiles in the achievement motivation literature (e.g., Archambault, Eccles, & Vida, 2010; Bråten & Olaussen, 2005; Conley, 2012; Hayenga & Corpus, 2010; Pintrich, 2000; Shell & Husman, 2008; Snyder, 2012). Utilizing a multiple pathways approach, we ask how individual factors interact with contextual factors leading to a variety of individual trajectories or pathways. This approach redirects the focus from variables (e.g., Do low judgments of academic competence give rise to underachievement?), which has dominated research on achievement motivation in the form of multiple regression analyses and structural equation models, to individuals (e.g., Does a particular constellation of beliefs, which may include low judgments of academic competence, give rise to underachievement?). The latter, person-centered approach is relatively new to research on achievement motivation and has primarily focused on understanding pathways to achievement. Here, we extend this focus on individuals to examine multiple pathways in underachievement. Specifically, we draw on the person-centered approach (also called person-oriented approach; Bergman & Magnusson, 1997) to consider development of motivational beliefs and behaviors leading to underachievement at the level of the whole person, rather than at the level of variables.

The aim of the current article is to integrate across modern motivational theories, employ a person-centered theoretical approach, and draw from prior research on underachievement to propose two primary developmental pathways in gifted underachievement. Briefly, we posit the Maladaptive Competence Beliefs Pathway (see Figure 1) to describe underachievement that develops from the early formation of maladaptive beliefs about giftedness. In this pathway, a gifted student is motivated to protect a gifted label, even at the ultimate cost of achievement. Being exposed to a very easy academic curriculum gives rise to risky motivational beliefs, including developing the belief that giftedness is equivalent to outperforming peers or that effort negates the gifted label. When a student with these beliefs later encounters academic experiences that threaten the gifted label and self-worth, the student self-handicaps or disengages to protect self-worth, and underachieves. In the Declining Value Beliefs Pathway (see Figure 2), we describe how underachievement develops from a cluster of beliefs including low perceived value for academics. These beliefs are detrimental for engagement, and interact with a changing educational context to result in increased cost value, disengagement, and underachievement.

In constructing both pathways, we draw from prior research on gifted students’ development, motivational beliefs and behaviors, the influence of socialization processes (parents and teachers), and the educational and curricular context. We first review prior research on underachievement, provide an overview of a person-centered theoretical approach, and briefly outline constructs from achievement motivation research that inform our pathways. Next, we present the two pathways from a person-centered perspective, highlighting the multiple ways in which underachievement can develop. Finally, we discuss how our model differs from previous models for underachievement and explain the implications of our theoretical model for guiding future research. We also outline educational implications for prevention and interventions.

UNDERACHIEVEMENT

Several major theories of giftedness (Gagné, 2005; Horowitz, 2004; Renzulli, 2005; Sternberg, 2005) define giftedness as demonstrably high ability, particularly intellectual ability. There is empirical support for relative longitudinal stability of high cognitive ability (e.g., Deary, Whalley, Lemmon, Crawford, & Starr, 2000). Early giftedness, rather than lifespan stability, will be the focus of our discussion, as the proposed pathways depend more on unfulfilled potential than on maintained academic ability throughout the lifespan. Distinguishing giftedness from achievement allows for the conceptualization and measurement of underachievement.

Underachievement as a general concept has been defined as a substantial, chronic gap between ability and achievement; when the level of ability is exceptional, this constitutes gifted underachievement1 (Reis & McCoach, 2000). Gifted underachievement has also been defined as the failure to transform exceptional ability into exceptional achievement (Gagné, 2004, 2005). Students with learning disabilities or attention disorders are typically excluded from the definition of gifted underachievement (Reis & McCoach, 2000). Although the level of achievement in underachievement can be objectively low, this is not always the case. One common statistical method for measuring underachievement (e.g., Lau & Chan, 2001a) highlights the difference between achievement and underachievement. Here, achievement is regressed on ability and students whose residual scores are greater than a certain value (achieving at a level below what would be expected for their ability) are said to be underachieving. Although chronicity is implied by the definition, most means of measuring underachievement do not explicitly address a length of time that the problem must persist.

1Studies examining underachievement in gifted students commonly specify if the sample consists of only gifted students or if gifted and typical underachieving students are being compared. However, research on underachievement in general rarely identifies if gifted students are in the sample (Clinkenbeard, 2012). Therefore, it is not always possible to identify factors contributing to underachievement specifically for typical students (cf. Carr, Borkowski, & Maxwell, 1991). In this article, we clarify if evidence refers to gifted samples or typical samples. We use “underachievement in general” to refer to unspecified samples.
Although underachievement is not limited to gifted students, the educational experiences these students encounter, coupled with their heightened intellectual ability, suggest that the psychological processes underlying gifted underachievement may be distinct from underachievement among typical students. Gifted students often encounter unique contextual factors such as being formally identified as gifted (Freeman, 2006), enduring very high expectations from parents and teachers (Berlin, 2009; D. W. Chan, 2003; Clinkenbeard, 1991; Moulton, Moulton, Housewright, & Bailey, 1998), being insufficiently challenged in academics (Baum, Renzulli, & Hébert, 1995; D. W. Chan, 2003; Gallagher, Harradine, & Coleman, 1997), and experiencing accelerated education (Rogers, 2007). Thus, our proposed pathways focus exclusively on the development of underachievement in gifted students.

Prior research comparing gifted underachieving students to gifted achieving students has revealed several constructs for future inquiry, including perceptions of competence and value. Findings regarding academic self-concept have been mixed (Reis & McCoach, 2000). Some underachieving gifted students report lower academic self-concept than achieving gifted students (Baslanti & McCoach, 2006; Van Boxtel & Mönks, 1992), but this finding is not robust (Ford, 1993; Vlahovic-Stetic, Vidovic & Arambasci, 1999). Finally, underachieving gifted students also appear to be less skilled in the use of self-regulated learning strategies (Baslanti & McCoach, 2006; Baum et al., 1995; McCoach & Siegle, 2003; Muir-Broaddus, 1995), which may manifest in overall low levels of effort and persistence. With respect to perceived value, underachieving gifted students report lower satisfaction with school and teachers (Baslanti & McCoach, 2006; Colangelo, Kerr, Christensen, & Maxey, 1993; Lupart & Pyryt, 1996; McCoach & Siegle, 2003) and lower perceived value for academics (Baslanti & McCoach, 2006; Emerick, 1992; McCoach & Siegle, 2003). Some research suggests that underachieving gifted students are motivated by high grades and positive feedback (Albaili, 2003), yet other research suggests that underachieving students perceive grades to be of little value (Emerick, 1992). There is also a large amount of within-group variation for underachieving students in perceptions of value (Baslanti & McCoach, 2006; McCoach & Siegle, 2003) and perceived academic competence (McCoach & Siegle, 2003).

This prior research is limited by several factors. First, this research primarily falls under a variable-centered approach...
to understanding underachievement by asking how variables themselves (e.g., academic self-concept or perceptions of value) relate to underachievement. Although multiple variables may be considered in variable-centered research, this approach is not aimed at understanding how variables combine synergistically to shape a phenomenon. Similarly, because the focus in variable-centered approaches is on understanding broad, generalizable patterns in relations between variables, it fails to sufficiently address the heterogeneity of findings in prior underachievement research.

Second, much of this prior research compares achieving and underachieving students at a single point in time. As such, the majority of prior research does not take a developmental perspective, despite several calls to focus on both talent development and underachievement as a growth trajectory, rather than a static state (Barab & Plucker, 2002; Dai et al., 1998; Dai & Renzulli, 2008; Eccles & Alfeld, 2007; Patrick et al., 2006). Relatedly, the single time point approach overlooks the almost certain possibility that students at different points in underachieving trajectories are being grouped together (e.g., students who have just begun to underachieve and those who have underachieved for a significant period of time, or students who underachieve for different reasons). Given the number of mixed findings in this prior research, and the observation that within-group differences for underachieving students appear to be larger than between-group differences (McCoach & Siegle, 2003), this aggregated approach is unlikely to be fruitful in isolating mechanisms in the development of underachievement.

THEORETICAL FOUNDATIONS

Our proposal of multiple pathways in gifted underachievement aims to address these shortcomings in prior research by utilizing a person-centered theoretical approach and drawing more extensively from modern motivational theories. To provide a background for this work, we provide a brief overview of the person-centered approach and then briefly highlight several relevant motivational constructs that inform these pathways to underachievement.

Person-Centered Theoretical Approach

The person-centered theoretical approach stems from both developmental science (e.g., Cairns, Elder, & Costello, 1996) and a holistic-interactionist approach (e.g., Magnusson & Statin, 2006) in which the focus of development is on individuals as complete wholes. In contrast with a variable-centered approach, in which relations between variables are
examined, a person-centered approach investigates how context interacts with individuals as a whole (who are composed of unique makeup of variables). Sterba and Bauer (2010a) posited six overarching principles of a person-centered approach:

1. Development is specific to the level of the individual (individual specificity).
2. Development consists of complex interactions both within and between systems such as individuals, dyads, or groups (complex interaction).
3. There are between-person differences in within-person development (interindividual differences in intraindividual change).
4. This interindividual variation in intraindividual change can be summarized as patterns (pattern summary).
5. Patterns and systems cannot be meaningfully reduced to individual components (holism).
6. Truly individual differences in development can be meaningfully summarized in a small number of observed patterns (pattern parsimony).

An application of each of these principles may be illustrated within the context of gifted students’ motivation and underachievement, using examples for each principle. Individual specificity: The timing and frequency of usage of self-handicapping behaviors is wholly unique to each individual, given this individual’s makeup of past experiences, current context, and current motivational makeup. Complex interaction: Development is richly and multiply determined, such that a single instance of self-handicapping likely stems from not only factors within the student’s immediate context (current task or academic assignment, current motivational belief makeup) but also broader factors both at that time (educational context, interactions with teacher) and previously (history of past self-handicapping usage, etc.); it is likely not singly determined from a sole motivational belief or single factor. Interindividual differences in intraindividual change: Any two students will differ between themselves in development; for example, even if two gifted students both develop a similar clustering of motivational beliefs that leads to self-handicapping, the individual patterning of development in these beliefs likely varies. Pattern summary: Comparable themes in between-individual variation can be identified, such as detecting a similar group of students who develop maladaptive coping beliefs as contrasted with another group of students who develop declining value beliefs. Holism: Each factor within the system (individual, dyad, group, etc.) lacks meaning unless placed in a context; for example, entity beliefs in gifted students should be situated within the broader context of socialization messages about giftedness, valuation of academics and giftedness, and competence beliefs. Finally, pattern parsimony: Although there are potentially infinite numbers of complex, individual pathways in underachievement, it is possible to carefully aggregate across similar pathways to propose a small number of patterns or trajectories of similar development.

Our model of gifted underachievement builds upon the principles of a person-centered approach (Sterba & Bauer, 2010a) to propose multiple pathways in underachievement. Specifically, we hypothesize that there are unique pathways (interindividual differences in intraindividual variation), which involve complex interactions between systems at the individual and contextual level (complex interaction). In these multiple pathways, we identify patterns of early beliefs and patterns of change (pattern summary), rather than focusing on individual variables as predictors of underachievement (holism). Finally, we propose a synthesis of these interindividual differences in the development of underachievement into two likely pathways of development (pattern parsimony). In both pathways, we hypothesize that unique constellations of beliefs and behaviors emerge from and interact with contextual factors (e.g., academic curriculum, gifted programs) and socialization agents (parents, teachers). Later contextual shifts (curricular and environmental) are posited to interact with these belief constellations to provoke various reactions (e.g., self-handicapping, disidentification) that lead to underachievement.

A person-centered approach is not simply a focus on different types of people, nor should the theory be confounded with or reduced to statistical methods (Bergman, 2000; Bergman & Trost, 2006; Sterba & Bauer, 2010a); rather, the approach constitutes the application of person-centered tenets and principles to a problem or phenomenon. Therefore, a person-centered approach uses a bottom-up generalization process, in which the goal is to understand processes at the individual level to generalize to other similar individuals, and not the population as a whole (von Eye & Bogat, 2006). These stances also relate to differing views on the treatment of heterogeneity in populations or groups. Although variable-centered research focuses on broad, overarching processes that apply to all or most individuals, proponents of a person-centered approach argue that there is an unavoidable reality that individuals are unique and psychological processes are complex, necessitating the proposal of and the search for multiple models or pathways that can explain individual development (von Eye & Bogat, 2006). Finally, this approach encapsulates more than just patterns; an understanding of the dynamics of individual development is encouraged (Sterba & Bauer, 2010a).

Applied to the study of gifted underachievement, the power in a person-centered approach lies in its ability to answer important questions: Are there different types of underachieving students (Figg, Rogers, McCormick, & Low, 2012)? How can we understand complex issues of causality behind the development of underachievement (Reis & McCoach, 2000) and its reversal (Rubenstein et al., 2012)? What are the mechanisms involved in different motivational outcomes among gifted students (Patrick et al., 2006)? Reconciling mixed findings (e.g., academic self-concept) is also
an important issue. In our model, we specify individual differences and divergences in patterns of beliefs over time. We highlight the possibility that low self-concept, for instance, may only be a factor in underachievement at certain points in an underachieving student’s trajectory or for students who have maladaptive beliefs about giftedness. Our model also addresses mixed findings by focusing on interindividual variability within distinct pathways to underachievement. By redirecting the focus from variables to the individual, we specify how variables may function synergistically within an individual to relate to underachievement. Finally, our model extends prior research on underachievement, which has focused primarily on middle school and high school settings, to consider trajectories spanning early childhood through young adulthood. We conceptualize gifted underachievement as the entire trajectory through which discrepancies (small and large) in a student’s expected and actual achievement contribute to the failure to transform high ability into exceptional achievement.

Social Cognitive Perspectives on Achievement Motivation

We take a comprehensive approach to motivation by integrating across several constructs from major theories in achievement motivation. Constructs and theories were chosen to address the two major components of achievement motivation: competence beliefs (“Can I do this task?”) and value-related beliefs (“Why do I want to do this task?”; Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006). These constructs were also selected for their relevance to gifted underachievement. Specifically, we draw on modern expectancy value theory (Eccles et al., 1983), which proposes that academic achievement and choices are predicted from individuals’ expectancies for success and perceived value for tasks. Related to the idea of expectancies is self-concept, or one’s judgments of competence in a domain (Harter, 1988; Marsh, Byrne, & Shavelson, 1988), which also informs our model. Another key construct with implications for gifted underachievement is self-worth. In self-worth theory (Covington, 1992), an individual’s sense of worth is affected most by experiencing success (increase in self-worth) and failure (decrease in self-worth) in domains that are regarded as central to the self; in other words, for domains in which self-worth is contingent upon success or failure (Crocker & Wolfe, 2001; Harter, 1988; Pelham, 1995). To protect self-worth, individuals often engage in various coping mechanisms (Tesser, 2000), such as academic self-handicapping (Berglas & Jones, 1978). Finally, implicit beliefs about intelligence (Dweck & Leggett, 1988; Yeager & Dweck, 2012) describe an individual’s ideas about the malleability of ability. These beliefs are not personality traits, but rather general frameworks for interpreting new information; accordingly, implicit beliefs predict important achievement outcomes. As discussed next, implicit beliefs are hypothesized to play a key role in the Maladaptive Competence Beliefs Pathway.

PATHWAYS TO UNDERACHIEVEMENT

Integrating across prior research on underachievement, major constructs and theories from social-cognitive perspectives in motivation, and tenets of a person-centered theoretical approach, we propose two major pathways in the development of underachievement among gifted students. In the Maladaptive Competence Beliefs Pathway (see Figure 1), we propose that early beliefs regarding giftedness and ability are later maladaptive when competence-related concerns are provoked due to increases in academic challenge. These early beliefs include both ideas about what giftedness means and valuation of academics and giftedness. In the Declining Value Beliefs Pathway (see Figure 2), early beliefs consist of moderate or low valuation of academics and giftedness. Students in the Maladaptive Competence Beliefs Pathway likely engage in self-protective coping mechanisms and underachieve upon confronting an increase in academic challenge. In contrast, students in the Declining Value Beliefs Pathway disengage and underachieve due to increasing perceived cost value and decreasing perceived value (intrinsic, attainment, utility). These value shifts may emerge under either increasing or decreasing academic challenge. Both pathways are tailored around one particular aspect of the academic environment: academic challenge.

Setting the Stage: Insufficient Challenge, Socialization, and Early Beliefs

The premise of the start for both pathways is framed around early insufficient academic challenge and differing reactions to being identified as gifted (or the absence of such identification). For most gifted students, the level of hard work and effort required to succeed in preschool through the middle elementary school years is relatively low (Reis & Renzulli, 2011), suggesting that many gifted students are underchallenged during their early schooling experiences. Gifted students may react differently to insufficient academic challenge by forming varying constellations of beliefs. The formation of these beliefs is likely also influenced by students’ perceptions of what it means to be gifted (affected by being formally identified as gifted or the students’ own construction of self-beliefs in the absence of a gifted label). Prior research has identified heterogeneity in how gifted students perceive the gifted label, including mixed perceptions of viewing giftedness as something someone does versus something someone is (Kerr, Colangelo, & Gaeth, 1988), as well as varying levels of personal comfort with the gifted label (Robinson, 1990). We use our proposed pathways to explain some of this heterogeneity. Given the holism principle (patterns and systems cannot be meaningfully reduced to individual components;
Magnusson, 1999; Sterba & Bauer, 2010a), we argue that is the patterns of beliefs that affect behaviors leading to underachievement, rather than single variables. We first describe students’ early beliefs within the Maladaptive Competence Beliefs Pathway (see left side of Figure 1) and the Declining Value Beliefs Pathway (see left side of Figure 2). In subsequent sections, we discuss how these differing belief clusters are expected to result in varying reactions to contextual shifts (see right sides of Figures 1 and 2).

Maladaptive Competence Beliefs Pathway: Early Beliefs

We propose that for students in this pathway, experiencing insufficient academic challenge and identification as gifted may lead to the adoption of a constellation of maladaptive beliefs. These early beliefs, seen on the left side of Figure 1 in the dashed box, include ideas about what it means to be gifted (entity beliefs, normative conception of ability), and strong valuation of the gifted identity (high attainment value, contingency of self-worth on academics/giftedness). For as long as the curriculum remains easy, academic achievement will likely be high for students in this pathway, resulting in strong competence beliefs (high academic self-concept and expectancies for success) and high self-worth.

Regarding students’ beliefs about what it means to be gifted, Dweck (2002a) argued that the word “gifted” itself connotes a fixed endowment. Indeed, many individuals implicitly associate constructs such as excellence, productivity, and rarity with the term “giftedness” (Sternberg & Zhang, 1995). Therefore, identification as gifted may shape students’ beliefs about intelligence and ability, which in turn shape later beliefs and behaviors. In describing early beliefs in this pathway, we draw from research on implicit beliefs about intelligence2 (Dweck & Leggett, 1988; Yeager & Dweck, 2012) and conceptions of ability (Nicholls & Miller, 1983). Specifically, praise for being smart has been linked to the endorsement of an entity belief of intelligence (Mueller & Dweck, 1998), which refers to an implicit belief that intelligence (and likely also giftedness) is fixed and unchangeable (Dweck, 1999; Dweck & Leggett, 1988). Conceptions of ability refer to related beliefs about ability. As early as first grade, some students begin to develop a normative conception of ability, in which being smart is defined as being able to succeed on tasks that others cannot do (Nicholls, 1990; Nicholls & Miller, 1983). A gifted student may readily attend to the fact that it is easy to outperform peers on a variety of classroom tasks leading to an early belief of giftedness as dependent upon outperforming others. The development of these implicit beliefs about ability are proposed to be self-reinforcing, such that the student behaves in a given way because of implicit beliefs, and this behavior shapes the perceptions of the environment, offering new stimuli that continue to shape beliefs about the self (Kinlaw & Kurtz-Costes, 2003). Applied to the Maladaptive Competence Beliefs Pathway, a student’s normative conception of ability as well as entity beliefs are expected to shape the student’s preference for tasks that continue to affirm and strengthen these beliefs.

Early academic success and identification as gifted may also foster specific types of valuation for academics and giftedness. Given that some gifted students report a strong sense of internal gratification as a benefit of being labeled gifted (Moulton et al., 1998), the gifted label may foster high attainment value for academics, which refers to the personal importance of doing well on a task (Eccles, 2005; Eccles et al., 1983). Although high attainment value is generally adaptive, we hypothesize that it may set the stage for underachievement at later points along the pathway if this valuation for being gifted is too strongly attached to self-worth. Self-worth is an affective, emotional evaluation of one’s worth as a person, distinct from perceived competence or academic self-concept (Pintrich & Schunk, 2002). Individuals are highly motivated to maintain a sense of self-worth, both internally and to prove their worth to others (Covington, 1992; Pyzczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). One’s sense of worth is affected most by experiencing success (increase in self-worth) and failure (decrease in self-worth) in domains that are regarded as central to the self; this tie between self-worth and success and failure is referred to as contingencies of self-worth (Crocker & Wolfe, 2001; Harter, 1988; Pelham, 1995). We propose that students early in the Maladaptive Competence Beliefs Pathway attach personal importance to the gifted label and achieving academically (attainment value), possibly developing a sense of self-worth that is highly contingent on giftedness. Placing high importance on the gifted label can be adaptive in the early years if the gifted student is able to easily achieve success, thereby fostering a positive sense of self-worth.

As seen on the lower left side of Figure 1, the proposed early pattern of beliefs is likely shaped by socialization factors. Praise for being smart can foster a contingent self-worth (Kamins & Dweck, 1999) as well as entity beliefs (Mueller & Dweck, 1998), which may explain how a gifted label could lead to a strong contingency of self-worth on academics coupled with entity beliefs. Among gifted students, being exposed to parent perfectionism (parents’ own perfectionist tendencies) and experiencing early academic success are also associated with a self-worth contingent upon academics (Speirs Neumeister, 2004). Relatedly, very high expectations and pressure for academic success from both parents and teachers, which gifted students rate as a drawback of being identified as gifted (Berlin, 2009; Butler-Por, 1993; Freeman, 1994; Moulton et al., 1998), may also lead students to internalize this pressure and strengthen a contingency for self-worth on academics. Although having high expectations

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2Although select research has utilized more domain-specific measures of implicit beliefs (e.g., Rattan, Good, & Dweck, 2012), implicit beliefs are typically discussed at the general level (Dweck & Leggett, 1998; Yeager & Dweck, 2012). We take this more general focus for our proposed model.
for students’ success is certainly adaptive and recommended (e.g., Frome & Eccles, 1998), we refer specifically to the exceedingly high expectations that result in interference (pressure to succeed academically).

Finally, the combination of succeeding academically and being identified as gifted likely fosters positive competence beliefs, including high academic self-concept and expectancies for success. Self-concept refers to one’s evaluative perceptions of the self, and is organized in a hierarchical manner ranging from global self-concept to more specific forms such as social, physical, or academic self-concept to smaller levels such as mathematical and verbal self-concept, and so on (Harter, 1988; Marsh et al., 1988; Marsh & Shavelson, 1985). Relatedly, expectancies describe one’s belief about the probability of success on a given task, either in the immediate future or long term (Eccles et al., 1983; Eccles & Wigfield, 2002; Wigfield & Eccles, 2000). Expectancies are positively related to achievement, even controlling for subjective task value and prior achievement (Wigfield & Eccles, 2000), and self-concept is reciprocally tied to achievement (Guay, Marsh, & Boivin, 2003). Gifted students early in this pathway likely have positive judgments of their academic capabilities, as high-achieving gifted students have high academic self-concept (L. K. S. Chan, 1996). Therefore, we posit that students early in the Maladaptive Competence Beliefs Pathway would likely maintain both high academic self-concept and expectancies for future achievement.

Taken together, we propose that in the early portion of the Maladaptive Competence Beliefs Pathway (left side of Figure 1), insufficient academic challenge and being identified as academically gifted lead students to formulate a constellation of maladaptive competence-related self-beliefs (entity beliefs, normative conception of ability, high attainment value for academics and contingency of self-worth on academics and giftedness). These beliefs are posited to be further socialized through high parent and teacher expectations for success (in the form of high pressure to succeed) and ability-focused praise, particularly if this praise is noncontingent. In noncontingent feedback situations, individuals are unable to discern how past behavior led to current outcomes; for example, a gifted student praised for easy success may feel unclear as how to replicate that success when curriculum later becomes challenging. Noncontingent success feedback relates to higher levels of behavioral self-handicapping (Berglas & Jones, 1978; Hobden & Pilner, 1995), suggesting a link between early socialization factors and later maladaptive coping mechanisms in this pathway. Early achievement in this pathway may also foster high academic self-concept, high expectancies for continued academic success, and high self-worth.

Together, we propose that this pattern of beliefs will not be harmful (and may even be beneficial) when students are able to achieve easy success, such as when they encounter insufficient academic challenge early in their academic careers. However, as we discuss later, this pattern of beliefs sets the stage for underachievement when challenge increases, through the use of coping strategies such as self-handicapping and withdrawal from academics (disengagement). Based on the existing evidence, it seems most probable that students who do not form this constellation of early beliefs will not begin this particular pathway and would be less susceptible to underachievement, at least through this specific pathway.

Declining Value Beliefs Pathway: Early Beliefs

A key premise of a person-centered perspective is that individuals vary in their reactions to similar contexts. Here, we posit that students in the Declining Value Beliefs Pathway do not develop maladaptive beliefs about what it means to be gifted. Instead, these students develop low value beliefs. Students in this pathway may be formally identified as gifted but would not develop maladaptive beliefs from the label. For example, some identified students view the gifted label as defining what you do rather than who you are (Kerr et al., 1988), suggesting that gifted labels may not automatically connote an entity message.

The low value beliefs within this pathway are expected to emerge as a result of insufficient challenge. Curricula heavy with tedious “busy work” may result in lower perceived value for academic work for gifted students (Fredricks, Alfeld, & Eccles, 2010; Plucker & Mcintire, 1996), as many gifted students must spend time completing assignments they consider boring or useless (Kanevsky & Keighley, 2003). Drawing from expectancy-value theory (Eccles, 2005; Eccles et al., 1983), these value-related constructs can take on three primary forms: intrinsic, utility, and attainment value. Intrinsic value is the personal enjoyment or pleasure that one derives from engaging in a task; it is similar to constructs such as intrinsic motivation (Harter, 1981; Ryan & Deci, 2000), flow (Csikszentmihalyi, 1988), and interest (Schiefele, 1991). Utility value describes the importance of a task relating to future goals and plans. As noted previously, attainment value refers to the personal importance of doing well on a task. Together, value beliefs are most strongly associated with aspirations and choices but are also linked with heightened engagement and achievement (Wigfield & Eccles, 2000). Low to moderate levels of all three types of value form the foundation of the Declining Value Beliefs Pathway (seen left side of Figure 2). Although empirical research on task value with gifted students is still limited (Patrick et al., 2006), we discuss this clustering of beliefs in light of existing evidence and highlight avenues for future research on this pathway.

Research with typical students suggests that attainment value is driven by experiencing continued success in a domain (Eccles, 2005). However, it is possible that success in a very easy curriculum may not foster personal or attainment value for academics, as gifted underachieving students report feeling very detached from academics (Kanevsky & Keighley, 2003). Prior research indicates that low attainment
value is one characteristic that distinguishes achieving and underachieving adolescents in general (Lau & Chan, 2001b), supporting this link. Gifted underachieving adolescents also report low levels of interest in academics (Emerick, 1992; Kanevsky & Keighley, 2003), which relates to the proposed lower levels of intrinsic value. With respect to utility value, some gifted underachieving students in high school report still wanting to attend college (Colangelo et al., 1993), suggesting at least moderate levels of utility value. Although the research just described is based on older students, it leaves open the possibility that at least moderate utility value is still possible within an unchallenging curriculum if the student views the easy success as necessary to attain later goals. This may be enough to sustain some achievement in the early portions of this pathway while academic challenge remains insufficient over time.

Overall, as a student in this pathway repeatedly encounters unchallenging work, the likelihood that the student will form a connection between hard work and enjoyment or personal meaning diminishes. Thus, gifted students in this pathway risk never forming a strong connection between effort and positive outcomes such as intrinsic or attainment value, setting the student up for later disengagement and underachievement. Finally, given the relatively low levels of attainment value hypothesized for this pathway, we expect that self-worth is not contingent on academic success and failure. There is some support for this hypothesis, as not all gifted students have a self-worth contingent upon academics (Hotulainen & Shofield, 2003).

Multiple aspects of socialization are proposed to contribute to underachievement in this pathway (see bottom left of Figure 2). We expect that some students in this pathway are not formally labeled as gifted and thus do not risk the development of potentially negative self-beliefs identified for the Maladaptive Competence Beliefs Pathway. Other students in the Declining Value Beliefs Pathway may be formally labeled as gifted, but in a benign manner that does not foster maladaptive beliefs.

We hypothesize that one factor that contributes to some students following the Declining Value Beliefs Pathway rather than the Maladaptive Competence Beliefs Pathway is their varied reactions to the gifted label. In support of this view, prior research has identified heterogeneity in gifted students’ perceptions of being labeled as gifted, with some reactions suggesting a benign effect. Specifically, students identified as gifted vary in interpreting giftedness as a personal trait or a characteristic of performance (Kerr et al., 1988) and vary widely in reported comfort with the gifted label, such that many gifted students report feeling neutral or accepting of the gifted label (Robinson, 1990). Indeed, some underachieving gifted students report that easy academic tasks are frustrating specifically because these students crave a challenging curriculum (Kanevsky & Keighley, 2003). This frustration with easy curricula would be quite unlikely for students with entity beliefs, as these students often prefer easy tasks with low risk of failure (Nicholls, 1990). Future research is necessary to further understand variability in specific reactions to the gifted identification process and to identify specific factors in the identification process that may push students toward either of these two underachievement pathways (or help them escape pathways to underachievement and embark on alternative pathways to achievement).

Parent and teacher expectations (in the form of pressure to succeed academically or interference in the form of higher workload), are also hypothesized to play a role in socialization process in the Declining Value Beliefs Pathway (see bottom left of Figure 2). Similar to the Maladaptive Competence Beliefs Pathway, we propose that these high expectations in the form of pressure for academic success from both parents and teachers may push students towards underachievement, but for different reasons than hypothesized for the first pathway. Namely, high expectations may result in a higher workload at school. Gifted students are sometimes frustrated by frequent expectations to complete additional or more challenging work (Clinkenbeard, 1991). Although we hypothesize that appropriately challenging work will not lead to declining value beliefs early in this pathway, we expect that increased workload without challenge will, although this has yet to be empirically tested. Thus, it is possible that high parent and teacher expectations (interference) may also contribute to the development of low value beliefs and support students’ entry into the Declining Value Beliefs Pathway.

Alternatively, low expectations from teachers and parents may convey a low value for academics, which could also contribute to declining value beliefs. Providing some support for this, Dixon, Lapsley, and Hanchon (2004) identified a “nonperfectionist” cluster of gifted students characterized by sufficient confidence in academic abilities and nonnegative reactions to mistakes but lack of high personal standards. These students perceived that their parents were not critical but also did not have high standards. Although the clustering of self-beliefs in Dixon et al.’s (2004) research does not perfectly parallel our proposed clustering based on the Declining Value Beliefs Pathway, it does provide partial evidence for a clustering of beliefs associated with low parental expectations. However, additional research is needed to better understand the varied reactions to teacher and parent expectations in relation to our two proposed pathways.

In summary, we propose that the early beliefs in the Declining Value Beliefs Pathway are characterized by low to moderate levels of task value (specifically intrinsic, attainment, and utility value). Students in this pathway do not develop a self-worth contingent upon giftedness or academic success and do not espouse entity beliefs. This clustering of beliefs related to low valuation for academics stems from either high levels of parental interference and heavy course work that does not meaningfully challenge the student or low parental expectations that convey low value to the student. These options are set within the context of benign gifted identification or no gifted identification, such that an overly
high valuation of giftedness (proposed in the Maladaptive Competence Beliefs Pathway) does not occur. Although the proposed pattern of beliefs could lead to moderate achievement early in the pathway, underachievement will likely result as these students confront curricular changes later (either increasing challenge that results in a high workload or a continued decrease in challenge). Students may escape the beginning of this pathway to underachievement if benign or adaptive gifted identification procedures are accompanied by appropriately challenging and motivating curricula.

Shifting Contexts: Changes in Curricular Challenge

Contexts often change throughout students’ education. In the previous section, we discussed the differential patterning of beliefs that gifted students may develop as a result of insufficient challenge and being labeled as gifted (or not labeled). In this section, we turn to a discussion of how these beliefs interact with shifting contexts, both increased and decreased academic challenge. The very idea of Person × Environment Fit must be considered relative to individuals; an environment designed to be supportive and challenging for typical students may undermine engagement, adaptive motivation, and achievement for gifted students (Tomlinson, 1994). Therefore, transitioning between two environments may result in an increase in challenge for one student and a decrease in challenge for another (interindividual differences in intraindividual change; Sterba & Bauer, 2010a). We begin by discussing the proposed differences in how students in the two pathways react to increased and decreased challenge.

Increased Academic Challenge

As a student progresses through schooling, encountering academic challenge is almost inevitable (Dweck, 2002a). The experience of academic challenge may be quite delayed for gifted students, as some gifted students may not encounter especially challenging educational environments until high school, college, or even graduate/professional school (Balduf, 2009; Blackburn & Erickson, 1986). For gifted students who have been inadequately challenged, even confronting material that is appropriate for one’s ability and not necessarily above it, often results in student withdrawal and refusal to engage (Reis & Boeve, 2009). We posit that students’ responses to these academic challenges will vary between the two pathways. Students in the Maladaptive Competence Beliefs Pathway will react to this challenge with maladaptive coping mechanisms in an effort to protect self-worth, whereas students in the Declining Value Beliefs Pathway will disengage because of perceived cost in time and effort. Although both pathways are thought to lead to disengagement and underachievement in response to challenge, the underlying mechanisms are hypothesized to vary.

Maladaptive Competence Beliefs Pathway

Students who have been underchallenged are often unprepared to cope, both psychologically and with self-regulatory skills, to increased challenge (Balduf, 2009; Diaz, 1998; Reis & Boeve, 2009). For students with a maladaptive combination of competence-related beliefs (entity view of giftedness, high attainment value for academics and giftedness, self-worth contingent upon gifted status and academic success, believing that giftedness means outperforming peers), the affective consequences of the threat of failure, or psychological cost value, may be too high to continue engaging in academics. Psychological cost value refers to the consequences of failing at the task, such as a decline in self-worth (Battle & Wigfield, 2003; Eccles et al., 1983; Perez, Cromley, & Kaplan, 2013). An increase in academic challenge likely initiates maladaptive coping mechanisms for students in this pathway, posited to occur through increases in psychological cost (see right side of Figure 1).

Self-worth theory posits that individuals engage in a variety of coping mechanisms when failure threatens self-worth (Covington, 1992; Tesser, 2000) or when perceived psychological cost is high. One such coping mechanism is self-handicapping, in which an individual intentionally engages in behaviors that block success or avoids behaviors that facilitate success. This is done to protect self-worth against anticipated failure in an important domain (Berglas & Jones, 1978; Covington, 1992). If a student does not try, it is possible to hide true ability from being measured (Covington, 1992; Nicholls, 1990). Failure would be detrimental for self-worth for these gifted students whose self-worth is contingent upon being gifted, particularly those who endorse a fixed belief of ability. Entity beliefs begin to exert their negative effects when failure is expected (Blackwell, Trzesniewski, & Dweck, 2007; Dweck, 1999, 2002b; Grant & Dweck, 2003), as illustrated through a preference for easy rather than challenging tasks (Dweck & Leggett, 1988). Experimental work demonstrates that entity-focused messages about giftedness, as opposed to incremental-focused messages about giftedness, result in greater self-handicapping after a failure experience (Malin, Snyder, Dent, & Linnenbrink-Garcia, 2012). Similarly, experimental research with typical students finds that even incremental messages about intelligence do not protect against self-handicapping when contingency of self-worth on academics is high (Niiya, Brook, & Crocker, 2010). An unpublished study of Ivy League college students (Zhao, Dweck, & Mueller, as cited in Dweck, 2002a) also provides support for this link among high-ability students. In this study, students who endorsed entity beliefs reported greater imagined detriments in self-worth and

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3The self-handicapping literature distinguishes between behavioral self-handicapping (wherein the student actively sabotages success) and claimed self-handicapping (wherein the student only claims to have sabotaged success). For brevity, we use the term “self-handicapping” to refer to behavioral self-handicapping.
reduced engagement than similarly able students with incremental beliefs when responding to a hypothetical vignette about academic failure. These findings suggest that each of these beliefs (entity beliefs, contingency of self-worth on academics, and attainment value) is important to consider when investigating how maladaptive coping behaviors arise. From a person-centered perspective, it may be particularly important to examine how they function in tandem, as well as how they may emerge concurrently among gifted students.

Gifted students may also disidentify with academics to cope with threats to self-worth. Academic disidentification (Osborne, 1995, 1997; Schmader, Major, & Gramzow, 2001; Steele, 1992) or psychological disengagement (Major & Schmader, 1998; Schmader et al., 2001) is another coping mechanism used in the face of impending failure when perceived psychological cost is high. To protect self-worth, a student may defensively disidentify with academics through the discounting of feedback (Major & Schmader, 1998) or devaluing academics entirely (Major & Schmader, 1998; Nicholls, 1990; Tesser, 2000). For example, these students may dismiss gifted status or academic success as something that does not really matter. The students in this pathway who disidentify and devalue academics as part of coping behaviors will likely appear quite similar to students in the middle to later portions of the Declining Value Beliefs Pathway. This suggests a portion of possible similarity between the two pathways, although it should be noted that the students disidentified from academics) are distinct based upon differing contexts.

A hypothetical link between the use of self-handicapping and underachievement.

Increased curricular challenge may also cooccur with shifts in peer groups. As gifted students advance through school, they are often placed in classrooms that are grouped homogeneously by ability (Rogers, 2007), which may alter their academic self-concept. Prior research on the Big Fish Little Pond Effect (BFLPE; Marsh, Chessor, Craven, & Roche, 1995; Marsh & Parker, 1984; Preckel, Götz, & Frenzel, 2010) supports the idea that students, regardless of actual ability level, have higher academic self-concepts in classes where their peers are of low ability and have lower academic self-concepts in classes where their peers are of high ability. Thus, as gifted students are placed into homogenous classes, they may be at risk for lowered academic self-concept. Given the importance of expectancies for shaping students’ willingness to engage (Wigfield & Eccles, 2000), low self-concept may contribute to underachievement through an unwillingness to engage, particularly when failure is a possibility.

In the Maladaptive Competence Beliefs Pathway, declining perceptions of competence may be especially detrimental, as students in this pathway see giftedness as fixed, view their self-worth as contingent upon academic success and, perhaps most important, believe that giftedness means outperforming others (normative conception of ability or giftedness). The combination of low expectancies and high value appears to be more detrimental for achievement than is the combination of low expectancies and low value (Trautwein et al., 2012), suggesting that experiencing the BFLPE through the Maladaptive Competence Beliefs Pathway may be particularly damaging. For these students, declining academic self-concept may contribute to psychological cost value. In support of the coupling of beliefs and developmental sequences we propose for this pathway, there is empirical evidence to suggest that the coupling of low academic self-perceptions with entity beliefs emerges later in school, as this pairing was more common in high school than middle or elementary school among gifted students (Ablard & Mills, 1996). It is possible that individuals with entity beliefs have higher perceptions of competence in elementary school but became less optimistic about abilities because of entity beliefs as school became more challenging.

In summary, the maladaptive clustering of beliefs we proposed in the early portion of the Maladaptive Competence Beliefs Pathway (see left side of Figure 1) conflicts with increased academic challenge, such that maladaptive coping mechanisms are evoked that undermine achievement (see right side of Figure 1). Associated shifts in peer groups through ability grouping practices are expected to be especially maladaptive for students in this pathway, given their beliefs that giftedness depends on outperforming others and their declining sense of self-worth.

**Declining Value Beliefs Pathway.** Increased challenge is also one of the two routes leading to
underachievement for students in the Declining Value Beliefs Pathway, but it differs from the Maladaptive Competence Beliefs Pathway. In the Declining Value Beliefs Pathway, underachievement is hypothesized to occur through increasing perceptions of cost value and decreasing perceptions of value (see upper right side of Figure 2). Cost value refers to the perceived drawbacks and negative consequences of engaging in a task, such as the time and effort a task requires (Battle & Wigfield, 2003; Eccles, 2005; Eccles et al., 1983). Cost value is negatively related to academic choices and engagement (Battle & Wigfield, 2003; Eccles, 2005). This type of cost value is distinct from psychological cost, discussed in the previous pathway, in that cost value refers to behavioral costs (e.g., time, effort), whereas psychological cost refers to affective costs associated with task engagement (Battle & Wigfield, 2003; Eccles et al., 1983; Perez et al., 2013). Because students in the Declining Value Beliefs Pathway do not have maladaptive beliefs about giftedness, cost value (e.g., time and effort taken away from other activities, perceived drawbacks of success and high achievement, external pressure to continue success) rather than psychological cost is critical for this pathway. In contrast, psychological cost is proposed to be the driving factor in the Maladaptive Competence Beliefs Pathway due to the early constellation of beliefs surrounding overvaluation of giftedness and academic success.

As academic challenge increases (see top right of Figure 2), cost value may also rise and provoke disengagement and underachievement for students following the high challenge route along this pathway. The development of high-level expertise in a domain requires significant amounts of time and effort (Ericsson, Roring, & Nandagopal, 2007), even for highly able individuals. To acquire expertise, effort must be concentrated in one area and often sacrificed in other areas of high or above-average potential (Walberg & Paik, 2005). The pursuit of academic excellence for gifted students may also carry a perceived cost of isolation from the peer group or violation of gender norms for female students (Eccles & Alfeld, 2007) as well as interference with opportunities to engage in highly valued nonacademic activities (Emerick, 1992; Kanevsky & Keighley, 2003). Among capable women in mathematics, perceptions of cost (including effort and lost time for pursuing other goals) are negatively related to intentions to attend graduate school (Battle & Wigfield, 2003). Alternatively, because some underachieving students are frustrated by insufficiently challenging academics (Kanevsky & Keighley, 2003), an increase in academic challenge may be a welcome change that could help to foster intrinsic and attainment value, resulting in reengagement and prevention of underachievement. Thus, these students may be able to escape the later portion of the Declining Value Beliefs Pathway, avoiding underachievement. These potentially differing reactions represent a possible bifurcation in trajectories at the later stage of the Declining Value Beliefs Pathway.

In the previous pathway, we discussed how the BFLPE may occur if increases in academic challenge are accompanied by a shift in peer grouping and that this may drive the onset of coping behaviors in conjunction with increased psychological cost. It is certainly possible that students in the Declining Value Beliefs Pathway may also experience the BFLPE if the peer group changes. However, we are positing that low value beliefs and increases in perceived cost drive underachievement in this pathway, not declines in competence. Partial evidence to this end is given by recent findings that low perceptions of competence are most detrimental when combined with high value, rather than low value (Trautwein et al., 2012); therefore, we do not include the BFLPE as a driving force in this pathway. This contrast illustrates another distinguishing factor between the pathways.

Decreased Academic Challenge

Experiencing a decline in academic challenge is proposed as an alternative route to underachievement for students in the Declining Value Beliefs Pathway (see middle right of Figure 2). Just as academic curricula often change to become more challenging, as discussed in the previous section, academic challenge can also decrease. For instance, many students experience decreased challenge in middle school, before challenge increases as students transition to high school or college. Indeed, prior research suggests that academic tasks may become easier in middle school, often involving the review of previously learned materials (Eccles et al., 1993). Specifically, the focus in middle school is often on avoiding overchallenging students but rarely on the dangers of underchallenging them (Tomlinson, 1994). The experience of a low-challenge environment may be especially prominent among gifted adolescents. Empirical evidence using experience-sampling methodology found that high-ability middle school students were more likely to be bored during school than typical students but were not as often bored outside of school. Therefore, it was the unchallenging school environment that led to boredom (Larson & Richards, 1991).

Transitions in the environment that shift the curriculum toward increasingly lower levels of challenge (i.e., a high volume of low-challenge work or busy work) are expected to produce varied reactions by students in the two pathways. Because the threat to self-worth is minimal with easy work, being insufficiently challenged should not foster maladaptive coping mechanisms for students in the Maladaptive Competence Beliefs Pathway. For these students, encountering lower challenge would enable the maintenance of academic success and the gifted label, making underachievement less likely.

In contrast, students in the Declining Value Beliefs Pathway are expected to react more negatively to being insufficiently challenged later in development (see middle right of Figure 2). As noted previously, such situations can provoke devaluation, boredom, and disengagement (Fredricks et al.,
suggesting that decreased challenge may further push students in this pathway toward underachievement. Gifted adolescents view schoolwork in typical classes to be more of a burden than schoolwork in gifted classes, reporting difficulties with teacher expectations that are too high, lack of recognition from teachers for good performance, and having to carry a heavier burden in group work (Clinkenbeard, 1991). Gifted students also name additional homework and schoolwork as a drawback of being identified as gifted (Berlin, 2009). This could be a likely outcome of transitions toward decreasing academic challenge in the form of increased busywork, underscoring the detriments of giving gifted students additional work rather than properly differentiated work. Based on this prior research, it is reasonable to propose that continuing to endure insufficient challenge leads to increasing cost value, which in turn results in disengagement and underachievement for students in the Declining Value Beliefs Pathway.

Summary

In the Maladaptive Competence Beliefs Pathway, several factors (early insufficient academic challenge, parent and teacher practices, and certain gifted labels) are proposed to give rise to maladaptive motivational beliefs (see left side of Figure 1). These beliefs include entity beliefs, normative conceptions of ability, self-worth contingent upon giftedness and academic success, and high attainment value for academics. These students likely flourish as long as the academic curriculum remains easy, resulting in high academic self-concept, high expectancies for success, and strong self-worth. When the curriculum shifts to become more challenging (see top right side of Figure 1), these students are confronted with a threat to self-worth, particularly due to contingency of self-worth on academics and entity beliefs. If the BFLPE occurs due to changes in ability grouping, academic self-concept declines. Psychological cost value for academics rises, and maladaptive coping mechanisms (e.g., self-handicapping, disengagement) are deployed, potentially lowering self-worth. Underachievement then results from these various forms of withdrawal.

In the Declining Value Beliefs Pathway, early insufficient challenge and socialization factors (benign or absent gifted identification, paired with either low valuation from parents and teachers or high academic interference) instead fosters low levels of intrinsic, attainment, and utility value for academics. These students do not develop a contingency of self-worth on academics or entity beliefs about intelligence (see left side of Figure 2). Increases in perceived cost value and subsequent disengagement and academic withdrawal are proposed to occur for students in this pathway via two routes: increasing academic challenge and increasing volume of low-challenging academics (see top and middle right side of Figure 2). Both of these routes lead to underachievement. We have proposed that the two pathways are largely mutually exclusive based on the unique constellations of early beliefs and differing reactions to later contextual shifts. Yet it may be possible for students to switch pathways at certain points. For example, an individual in the Declining Value Beliefs Pathway could traverse the Maladaptive Competence Beliefs Pathway if later identification as gifted results in a shift from initial low valuation of academics toward the maladaptive patterning of beliefs about competence and giftedness. Relatedly, if a student in the Maladaptive Competence Beliefs Pathway wholly disidentifies from academics, removing academics and giftedness as a contingency of self-worth, he or she may appear similar to a student in the Declining Value Beliefs Pathway. In future research, careful attention should be given to understanding if and how students switch pathways, and the ramifications of such movement.

Overall, the developmental processes proposed in these pathways were generated based both on motivational theories and on prior empirical research. The strength of this model lies in its ability to propose specific mechanisms through which underachievement occurs, and to highlight areas in which targeted empirical investigation is needed. Before outlining future directions for empirical research, we first turn to a discussion of how our model relates to and extends previous models of underachievement.

Theoretical Contributions of Proposed Pathways

Although an abundance of theoretical models have been aimed at understanding variations in achievement (high or low), few formal models exist to explain underachievement, either in general or specifically for gifted students. Two models for general underachievement (not specifically gifted students) have been proposed. The metacognitive model of underachievement (Borkowski & Thorpe, 1994; Carr et al., 1991) was developed to explain how underachievement develops among typical students. In this model, underachievement occurs when maladaptive attributional beliefs lead to weak or underdeveloped metacognitive beliefs and self-regulated learning skills. As these weaknesses and underachievement undermine development of possible selves, students do not have positive future visions of themselves to support present motivation and engagement. The multimodal theory of academic underachievement (Krouse & Krouse, 1981) was also developed to explain underachievement at a general level rather than specifically for gifted students. In this model, underachievement is posited to result from complex interactions among three factors: deficits in academic skills, lack of self-control, and affective problems (personality, low motivation). As an example, poor initial academic performance could result in reduced academic self-concept and self-worth, leading to reduced studying, and a continuing repeat of the cycle.

Three models of underachievement among gifted students have also been proposed. The Prism Metaphor (Baum et al., 1995) posits that underachievement in gifted students is the
result of a complex interaction of factors including inappropriate academic curricula, social or behavioral problems, learning problems, and emotional problems. Addressing the complex interactions among these factors (i.e., focusing on strengths, authentic academic tasks, and mentoring relationships) results in qualitative, rather than quantitative, changes in underachieving students. The interactional multilevel theory of gifted underachievement (Mooij, 1992) proposes complex interactions between personal and environmental factors at four educational levels (preschool, transition to kindergarten, transition to elementary school, and transition to secondary school). Particular interactions are proposed to lead to underachievement, such as an inflexible school curriculum conflicting with a gifted child who needs more challenge. Finally, in the Achievement Orientation Model (Siegle & McCoach, 2005), underachievement is proposed to occur from the absence of at least one key factor: finding the task or domain personally meaningful, self-efficacy/competence beliefs (including implicit beliefs), and perceiving a supportive environment. The absence of one factor results in a lack of active self-regulatory behaviors, which in turn leads to underachievement.

Similar to these existing models, we address psychological constructs such as valuation/meaningfulness, competence beliefs, and maladaptive attributional patterns. We also emphasize the detrimental effect of an unchallenging academic curriculum. However, our model is distinct from these previous models in several key ways. First, our model differs from both models for typical students in that the choice of constructs and specification of pathways is tailored for gifted students. For example, we specify how the experience of being identified as gifted (a factor not relevant for typical students) may contribute to the development of maladaptive beliefs. Although typical students may certainly receive ability-focused praise, gifted or high-ability students are arguably more likely to feel great pressure to succeed academically from the specific identify of “gifted” bestowed upon them. In addition, neither model for underachievement among typical students takes a person-centered approach to detailing the development of underachievement.

Second, we draw more broadly from established motivational theories to highlight constructs of greatest relevance for gifted students. Although other models have integrated across theories or multiple constructs, no specific developmental trajectories are detailed. For example, our model is distinct from existing models for both gifted and typical students such that we explicitly utilize self-worth theory to explain how early experiences (personal beliefs surrounding academics and giftedness, socialization factors from schools and parents) contribute to the development of maladaptive coping mechanisms such as self-handicapping. As another example, we extend beyond descriptions of low valuation, as in prior models, to detail specific aspects of perceived value from expectancy-value theory in our Declining Value Beliefs Pathway.

Third, we articulate developmental mechanisms along multiple pathways in underachievement through the use of a person-centered framework. This discussion includes the active emergence of maladaptive beliefs and behaviors, not just the absence of factors. For instance, we build upon the component of meaningfulness by differentiating various types of task value (interest, attainment, utility, and cost value). In contrast to each of the previous models, the utilization of a person-centered approach provides a lens for specifying complex interactions among the student-level and environmental factors. For example, we go beyond proposing that low efficacy beliefs lead to underachievement (achievement orientation model) to construct a proposed clustering of motivational beliefs that lead to the usage of maladaptive coping mechanisms in interacting with specific contextual factors such as increased academic challenge and shifting peer groups. These interactions are described as divergent individual trajectories in the development of underachievement in gifted students. By providing a detailed proposal of two key pathways to underachievement and identifying specific psychological mechanisms, our model provides a clearer framework for future research to specifically test, with the ultimate goal of providing targeted recommendations for prevention and intervention efforts.

Our pathways also represent a contribution to the broader literature on achievement and underachievement for typical students. Although the current model was tailored specifically to explain the development of underachievement in gifted students (reflected particularly in the choice of constructs and contextual experiences), it may serve as a starting point for the development of models designed to explain underachievement in typical students. With regard to model construction, the current pathways can be used as a blueprint for how to design theoretical models for typical students. For example, searches for existing heterogeneity, such as empirical findings that reveal varied reactions or beliefs among a particular group, can highlight fruitful areas for careful exploration of why students vary. In addition, some of the specific portions of the aforementioned pathways may be adapted for usage with typical students. For instance, the portion of the pathways referring to messages about giftedness may be adapted to consider various messages about smartness or performance, or even low performance, in considering how these factors relate to later underachievement in typical students.

AVENUES FOR FUTURE EMPIRICAL INVESTIGATION OF PROPOSED PATHWAYS

Despite criticisms that a person-centered, holistic perspective is too broad (i.e., “everything interacts with everything”) to be tested empirically, there have been numerous advancements in empirical techniques aimed at understanding individual processes (Magnusson & Tørestad, 1993; Sterba &
Bauer, 2010b). Although a detailed discussion of the variety of empirical methods used to investigate person-centered processes and multiple considerations in person-centered research is beyond the scope of this article (interested readers may consult Bergman & Magnusson, 1997; Sterba & Bauer, 2010a, 2010b), we provide a brief overview of several avenues for future research related to the proposed pathways. Overall, the goal of future research will be twofold: first, to gather empirical evidence specifically for the proposed longitudinal changes in both pathways, and second, to isolate the mechanisms through which differential patterns of early beliefs develop and relate to later beliefs, behaviors, and underachievement.

Pattern description, the identification and description of likely patterns or clustering of constructs, or common types of individuals (Magnusson & Tørestad, 1993), is one important person-centered method that is critical for studying the proposed pathways. Applied to our model, pattern description would consist of identifying and describing patterns of motivational beliefs in gifted students throughout development. For example, does the patterning of early beliefs proposed in the Maladaptive Beliefs Pathway emerge after certain types of gifted identification practices, or only in combination with an insufficiently challenging academic curriculum? Similarly, an examination of contextual or socialization factors that distinguish between the development of the beliefs proposed in both pathways could help confirm the antecedents of beginning along each pathway. It will also be important to empirically investigate how these constellations of early beliefs relate to patterns of outcomes, rather than just single outcomes (Mahoney & Bergman, 2002). Therefore, future research should include an examination of how motivational belief patterns relate to patterns of behaviors (self-handicapping, disengagement, and subsequent shifts in motivational beliefs), rather than how beliefs relate to just underachievement. It is also necessary to search for patterns and trajectories that do not occur or occur very infrequently (white-spots and anti-types; Bergman & Magnusson, 1997). Which clusters of beliefs about giftedness do not occur, and which patterns of beliefs rarely relate to underachievement? Methods such as cluster analysis or latent profile analysis can be used to identify varying initial patterns of self-beliefs, examine how these patterns shift across time, and understand how they predict underachievement as well as patterns of other key variables (coping mechanisms, disengagement, and underachievement).

For questions regarding the specifics of developmental mechanisms (pattern dynamics; Magnusson & Tørestad, 1993), person-centered researchers (Bergman, 2000, 2012; Magnusson, 2001) have recommended the use of dynamic systems modeling approaches. Dynamic systems theory (Thelen & Smith, 1994; van Geert, 1994) has given rise to a multitude of novel ways to empirically investigate the self-emerging nature of development across multiple timescales (Kunnen, 2012). Framed within the Maladaptive Com-
with the mechanism-driven questions being asked in this area. Further, the proposed multiple motivational pathways to underachievement approach can also serve as a model for considering how to integrate across motivational theories to consider the dynamic developmental patterns of engagement and achievement among all students.

**IMPLICATIONS FOR EDUCATORS AND PARENTS**

Our model, once additional empirical evidence is collected to fully support it, can serve as a guide for preventing gifted underachievement and intervening once students have begun to underachieve. By and large, our recommendations parallel many of the current recommendations for supporting gifted students’ motivation, engagement, and achievement. However, our model may help to redirect prevention and interventions from a focus on single variables across individuals (e.g., alleviating underachievement through creating an intervention to improve academic self-concept) toward addressing the shape and type of interrelated networks of beliefs (e.g., identifying students as endorsing a cluster of beliefs consistent with the Maladaptive Competence Beliefs Pathway and tailoring an intervention accordingly). The incorporation of a person-centered or dynamic systems-oriented perspective into interventions may be helpful for considering timing issues (e.g., how long have they been underachieving, how stabilized their coping mechanisms have become, etc.).

Prior research (Granic, 2008; Yeager & Walton, 2011) highlights the benefit of intervening at transition points, when the system (individual) is in flux and may be most receptive to redirection. For example, Preckel et al. (2010) suggested that interventions aimed at reducing BFLP effects are most effective when administered at the start of ability grouping practices, rather than later in the semester. Well-timed interventions increase the likelihood that changes are made that will affect later dynamic, recursive properties, as has been emphasized with social-psychological interventions (Yeager & Walton, 2011).

**CONCLUSION**

Underachievement is a complex, multidetermined phenomenon. Accordingly, researchers in this area have questions about its development that cannot be sufficiently answered with a variable-centered theoretical and empirical approach. Prior variable-centered research has contributed substantially to the field’s understanding by identifying key constructs of interest (competence and value beliefs). We extend this research through the utilization of a developmental, person-centered approach. In applying this approach, we can begin to understand the mechanisms through which this development occurs. Accordingly, our model seeks to address the real-world problem of underachievement while also advancing a theoretical understanding of how and why underachievement develops. We extend motivational theory by integrating across several key motivational theories and constructs to specify longitudinal, person-centered development of processes that likely contribute to chronic underachievement among a specific population: gifted students. Given the distinction between achievement and underachievement as we have outlined, we also advance prior research by focusing specifically on multiple pathways to underachievement, extending prior research and theory that has focused on achievement but has not considered the unique processes in underachievement.

Our model also addresses recent calls by motivational researchers to take a more nuanced, person-centered approach to understanding the multiple pathways to achievement (or underachievement) and to consider how these trajectories are shaped by parents and educators (e.g., Archambault et al., 2010; Linnenbrink-Garcia & Fredricks, 2008; Pintrich, 2003; Shell & Husman, 2008). It is our intent that our model can be used as a road map for highlighting multiple future directions in research on gifted underachievement. As research continues, a synergistic integration of a person-centered and variable-centered approach is needed to comprehensively understand development (Bergman, 2012, Laursen & Hoff, 2006; Magnusson & Tørestad, 1993) and underachievement. It is through these combined efforts that we are most likely to best understand how to support gifted student growth across a wide variety of contexts, ensuring that all gifted students fulfill their greatest potential.

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