

Mindset Theory and School Psychology

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journals.sagepub.com/home/cjs**Aamena Kapasi¹**  and **Jacqueline Pei¹**

Abstract

Mindset theory is an achievement motivation theory that centers on the concept of the malleability of abilities. According to mindset theory, students tend to have either a growth mindset or a fixed mindset about their intelligence; students with a growth mindset tend to believe that intelligence is malleable, whereas students with fixed mindsets tend to believe that intelligence is unchangeable. As described in many empirical and theoretical papers, the mindset a student holds can influence important psychological and behavioral factors, including reaction to failure, persistence and level of effort, and expectations of success, which ultimately impact academic achievement. Importantly, mindsets can be changed, and interventions have been developed to promote a more growth mindset. A growth mindset allows students to view challenges as an opportunity for improvement, is linked to enjoyment of learning, and increases motivation in school. School psychologists are often working with students with learning differences and/or mental health concerns who are particularly at-risk for poor academic achievement, and researchers have demonstrated the important impact a growth mindset can have for these vulnerable students. School psychologists are well-positioned to incorporate mindset theory into the school environment in order to best support the students they serve. In this paper we provide a theoretical overview of mindset theory and mindset interventions, and specifically review the literature on mindset theory for individuals with learning disabilities and mental health challenges. We discuss how school psychologists can incorporate mindset theory into their practice to support the shift from a fixed to a growth mindset for all students.

Keywords

mindset theory, school psychologists/counselors, education professionals, motivation, personality/individual differences, strengths

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Mindset theory is an increasingly popular theory of achievement motivation that has made its way into many Canadian classrooms. Numerous resources, websites, and programs have been developed based on this theory identifying the power of beliefs and how our beliefs can influence our motivation and achievement. Although applied to various settings, including sports (Zanin et al., 2020) and business (Canning et al., 2020), mindset theory has been most influential in the field of education. Interventions have been incorporated into educational settings across the world with the hope of targeting student's beliefs about their intelligence. School psychologists are well-positioned to support this momentum by assisting school staff, parents, and students in understanding and implementing mindset theory. In this paper, we (1) provide an overview of mindset theory and interventions, (2) examine the role of mindset theory in supporting students with learning disabilities and those with mental health concerns, and (3) outline key considerations for school psychologists and provide an argument for the inclusion of mindset theory in the work of school psychologists.

Theoretical Overview

Mindset theory describes core assumptions about the malleability of personal qualities (Dweck & Leggett, 1988). The theory represents a social-cognitive approach that stems from goals and goal-oriented behavior and relates to individual differences in beliefs and values (Dweck & Leggett, 1988). Evolving from its roots in understanding children's perceptions of their intelligence in school settings, mindset theory informs how we understand responses to challenges or setbacks (Yeager & Dweck, 2020). Early efforts to understand how children respond to a challenge revealed two patterns of performance: mastery-oriented and helpless responses (Dweck & Leggett, 1988). The helpless response is characterized by avoidance of challenges and difficulty facing obstacles. In contrast, the mastery-oriented pattern involves seeking challenging tasks and persistence after failure.

Seeking to explain these patterns, Dweck and colleagues posited that there may be a difference in achievement goals underlying the observed behavior (Elliott & Dweck, 1988). Some students see achievement situations as a test of their ability (i.e., performance goals), while others see them as learning opportunities which may increase their ability or understanding (i.e., mastery or learning goals) (Elliott & Dweck, 1988). Students with mastery goals tend to confront challenge, show more effort, optimism, and effective strategizing (Elliott & Dweck, 1988). Alternatively, those with performance goal orientations tend to focus on demonstrating competence, obtaining positive judgments of one's ability and avoiding negative ones, and using social comparison standards (Schunk et al., 2008). Individuals with performance goal orientations are also more vulnerable to helpless responses (Dweck & Leggett, 1988). These individuals may avoid activities that pose a risk of failure or errors, and demonstrate more self-blame, negative affect, and impaired problem-solving strategies (Elliott & Dweck, 1988).

Implicit Theories of Intelligence

But why do children develop different learning goals? Dweck and colleagues recognized that our beliefs associated with our perceived capacities have a significant impact on our ability to navigate, and even benefit, from difficulties or failures we might experience (Yeager & Dweck, 2020). Different theories about one's abilities orient individuals to different goals, which in turn relate to different patterns of behavior. Two self-theories emerged from this research that mapped onto achievement goals; entity theorists were associated with a performance goal orientation, and incremental theorists were related to mastery goals (Dweck & Leggett, 1988). Integration of this thinking was initially named Implicit Theories of Intelligence (ITOI) but recognizing that this theory can be applied to any aspect of the self, ITOI is now commonly referred to as Mindset Theory (Dweck, 2006).

Mindset theory organizes our capacity beliefs into two broad groups—a fixed mindset and a growth mindset. A fixed mindset, originally called an entity theory of intelligence, describes the belief that one's intelligence is not under one's control (Dweck & Leggett, 1988). A fixed mindset commonly exhibits itself as the belief that abilities are stable and unchanging, and individuals with a fixed mindset tend to believe that a person has a set amount of potential for a certain task. A person with a fixed mindset would endorse the statement "I can't change my intelligence." Children with a fixed mindset are prone to the helpless response pattern because they tend to view challenges as insurmountable tasks, which they interpret as indicative of low ability (Dweck & Leggett, 1988).

In contrast, those with a growth mindset, originally called an incremental theory of intelligence, believe that intelligence is malleable and can be cultivated and developed with effort and experience, despite differences in aptitude, interest, or personality (Dweck, 1998). A growth mindset has been linked to higher academic achievement, taking more challenging courses, and college retention (Yeager et al., 2019). A person with a growth mindset would endorse the statement "I believe I can change my intelligence." Children with a growth mindset are more likely to have a mastery-oriented pattern, which is more adaptive to learning, because they maintain positive affect toward the task and may even increase their strategy use (Dweck & Leggett, 1988). Students who hold a growth mindset have been found to endorse stronger learning goals and make fewer helpless attributions (Blackwell et al., 2007). It is important to note that mindsets are domain specific; for example, someone could have a growth mindset about their math skills, but a fixed mindset about their basketball skills (Dweck, 2006).

Mindsets are often discussed as something one *has*; however, in practice, mindsets are situation dependent (Dweck, 2017), and all individuals have both growth and fixed mindsets at different times. There are certain events, circumstances, or people who influence our mindsets; for example, a situation where one feels judged, or where mistakes are not allowed, may trigger a fixed mindset (Dweck, 2017). Thus, mindset is highly influenced by environment and therefore provides a potential avenue for psychological professions to promote a growth mindset throughout the developmental years.

As children age, a rise in social comparison, identity development, increasing levels of self-evaluation, and environmental structures, such as grades, may influence student's mindsets to become more fixed (Dweck, 1999). Associations between mindsets and academic achievement have been found to be strongest during the early teen years (Costa & Faria, 2018). Particularly given the vulnerabilities associated with early adolescence, including high level of self-focus and fear of embarrassment, adolescents with a fixed mindset may reduce their academic efforts in an attempt to protect their egos (Dweck, 2006). Thus, early groundwork to facilitate increased influence of a growth mindset during this critical developmental period may motivate students, particularly those who are more vulnerable, to continue to invest in their goals (Yeager et al., 2019).

Mindset and Motivation

Mindset theory is closely associated with theories of motivation (Dweck, 2017). Although the relationship between motivation and academic achievement has been considered to be one-directional, with motivation influencing academic achievement (Wigfield & Wagner, 2007), other researchers have posited that motivation and achievement have a reciprocal relationship (Deci et al., 2001; Dweck & Master, 2009), whereby academic successes and failures impact motivation and motivation in turn impacts achievement (Saunders, 2013). For example, special education students who experienced repeated academic failures had lower self-efficacy (Hampton, 1996), and low self-efficacy may contribute to decreased willingness to attempt a challenging task and/or sustain effort, further increasing the likelihood of academic failures. The beliefs a student holds about their ability to learn and grow may be a key factor in determining which students are willing to attempt challenging tasks to work toward academic success and which students are not.

Mindsets appear to be one of many factors that influence grades for children (Yeager & Dweck, 2020). In a meta-analysis of the mindset literature and academic achievement, Costa and Faria (2018) found that students with a growth mindset were more likely to obtain higher grades in verbal and quantitative subjects and have higher overall achievement. Fixed mindset students also showed a positive association with specific verbal and quantitative subjects, but at a lower magnitude than their growth mindset peers. Yet these relationships were often of a low to moderate strength; thus, although an important component for academic outcomes, the influence of mindset is complex, and possibly most influential due to the impact it has on motivational factors such as reaction to failure, persistence and level of effort, and expectations of success, which ultimately influence academic outcomes.

Mechanisms of Mindsets

Reaction to failure. A growth mindset allows students to see challenges and failures as separate from their actual competency or personality, therefore students with a growth mindset tend to benefit from mistakes and feedback, seek help when they need it, and

learn from failure (Dweck, 2017). On the other hand, those with a fixed mindset struggle to see opportunity in failure because they are afraid of showing inadequacy (Dweck, 2017). For individuals with fixed mindsets, failure is believed to reflect who they are as a person, and so individuals with a fixed mindset are generally more vulnerable to helplessness when they fail because they do not believe their abilities can improve. Individuals with fixed mindsets may react to failure with more negative affect and fewer constructive strategies than those with a growth mindset (Zhao & Dweck, 1994). Individuals with a fixed mindset are also primarily outcomes-focused. In a study using EEG technology where individuals completed a task and then were given feedback, those with a fixed mindset exhibited the strongest attentional response when they were told whether they were right or wrong, not when they were offered strategies for improvement (Mangels et al., 2006).

Persistence and level of effort. Having a growth mindset about intelligence in middle school can predict higher grades, which can be attributed to positive beliefs about the value of persistence, and a willingness to respond to challenges with increased effort and helpful strategies (Blackwell et al., 2007; Sarrasin et al., 2018). Blackwell et al. (2007) examined the impact of beliefs regarding intelligence. They found students with a growth mindset experienced improved math performance over 2 years of junior high school compared to students who held fixed mindset. These growth mindset students demonstrated more effort-based strategies in response to failure, which consequently boosted their math achievement.

Expectations of success. Expectancy beliefs (i.e., beliefs about expectancy for success) are another key component of a growth mindset. Especially in groups of students who typically hold low expectations for themselves, such as low-income students and females in Science, Technology, Engineering, and Mathematics (STEM) courses, a growth mindset can bolster expectations, and in doing so create the motivational context that helps these students achieve academic success. For example, Degol et al. (2018) found that student's growth mindsets predicted a higher value of math to the student, and task values mediated the pathway from growth mindset to higher STEM career aspirations. Notably, females and males with fixed mindsets had comparable math grades; however, females with a growth mindset had higher grades than males with a growth mindset. This difference was due to females having higher expectancy beliefs than males, which suggests that expectancy beliefs about math abilities are an important factor in math performance for female students (Degol et al., 2018).

Similar to students who face gender stereotypes, low-income students may be less likely to have positive expectations for success given their life experiences. A growth mindset may be one factor can lessen the impact of socio-economic status on academic achievement. A study by Claro et al. (2016) found that, although high school students from lower-income families were less likely to hold a growth mindset than wealthy students, those lower-income students who did have a growth mindset showed achievement in language and math scores comparable to high-income peers with a

fixed mindset, suggesting that a growth mindset may act as a buffer between academic achievement and poverty (Claro et al., 2016).

The influence of mindset is most associated with achievement among those who are facing challenges, which is relevant for school psychologists who often work with these students. In order to best help these students, it is important for psychologists to not only understand the psychological and behavioral influences of mindsets, but also how to use mindset theory as a form of intervention.

Mindset Interventions

Mindset interventions educate students about their brain and its capacity for growth and development, with the aim of fostering a growth mindset and ultimately influencing positive outcomes, such as academic achievement (Yeager & Dweck, 2020). Often mindset interventions (e.g., www.mindsetworks.com) are delivered to students in schools through videos, workshops, or a written explanation that highlights the ability of the brain to change and grow. Teaching students about neuroplasticity and the potential for growth has an influence on their beliefs, which in turn has an overall positive effect on motivation and achievement (Sarrasin et al., 2018). In order to promote a growth mindset in students, mindset interventions often use metaphors such as “the brain is like a muscle – it gets stronger (and smarter) when you exercise it” (Yeager & Dweck, 2020, p. 1277).

Research Evidence

Solid evidence exists that supports the benefits of mindset interventions (Yeager & Dweck, 2020). In a meta-analysis of studies that taught neuroplasticity to induce a growth mindset in a variety of participants (Sarrasin et al., 2018), researchers found that targeting students’ beliefs about the malleability of their abilities by way of teaching about neuroplasticity had positive impacts on motivation, achievement, and brain activity. The impacts were most prominent for math achievement for at-risk youth (Sarrasin et al., 2018).

In one notable intervention study, seventh-grade students who were taught about growth mindsets throughout eight 25-minute lessons showed enhanced motivation in math class, based on teacher reports, and, consequently, these students maintained math performance over a 2-year period, in contrast to a control group who demonstrated a decline in math performance (Blackwell et al., 2007). Similarly, when low-income seventh grade students were mentored by college students and taught to view intelligence as malleable, they earned significantly higher reading and math scores than students in the control condition (Good et al., 2003). Researchers also found a decreased gender-gap for math performance; females who learned about the malleability of intelligence earned significantly higher math standardized test scores than females in the control condition (Good et al., 2003).

Mindset interventions do not need to be long or particularly intensive to have benefits, as evidenced by a large-scale study of ninth-grade students in the USA (the

National Study for Learning Mindsets) (Yeager et al., 2019). The researchers found that an online growth mindset intervention that was less than an hour in length led to improved grades for lower-achieving students and increased the rate at which students chose to stay in a harder math class (Yeager et al., 2019). Likewise, a 45-minute online mindset intervention increased growth mindsets of low-income, 10th grade female students immediately following the intervention and at 4-month follow-up. Moreover, the researchers found that having a growth mindset indirectly affected student's motivation, learning efficacy, and grades (Burnette et al., 2018). These research studies exemplify the evidence that mindset interventions can be beneficial for learning and academic success.

Intervention Considerations

Mindset interventions offer a cost-effective, time-efficient tool that can be implemented into schools (Yeager & Walton, 2011). School psychologists can promote the use of mindset interventions to booster student learning and potential. Importantly, certain conditions are essential to consider when implementing a mindset intervention to optimize benefits and increase positive outcomes.

First, mindset interventions have been shown to be most effective when growth is described alone, with no reference to fixed mindsets (Yeager et al., 2016). Second, mindset theory was originally called *implicit* theories because the underlying belief is not explicitly activated or necessarily in conscious awareness. This is a key factor which has often been neglected by the surge of interventions that attempt to change mindset by traditional teaching methods. The best interventions are autonomy-supportive, not didactic, and the intervention messages feel incorporated into the learning environment (Yeager & Dweck, 2020). Some examples of stealthy interventions include incorporating mindset information into written assignments (Yeager et al., 2019), courses (Blackwell et al., 2007), or mentorship experiences (Good et al., 2003).

Notably, growth mindset interventions encourage participants to consider theirs, and others, developmental potentials, but do not make any suggestions as to the magnitude or ease of that change (Yeager & Dweck, 2020). Therefore, when implementing mindset interventions, school psychologists should be cautious that students do not receive the wrong messaging that their abilities can develop easily or infinitely. This messaging could lead to distrust or disappointment in students.

Additionally, the role of the environment is crucial in fostering a growth mindset. Indeed, Yeager et al. (2019) found that it was the combined importance of belief change (i.e., mindset) and school environment (i.e., peer norms) that influenced sustained benefits of a mindset intervention. Thus, mindset interventions that deliver messaging about growth without embedding the same messaging in the school and classroom environment will be unlikely to see positive results (Yeager et al., 2019).

Mindsets and Children With Learning Disabilities

Researchers have found that mindset interventions especially benefit low-achieving students (Paunesku et al., 2015), and although there may be many reasons why a student is low-achieving, one factor may be the presence of a learning disability. Most research in mindsets has been conducted with typically developing populations, but preliminary work has shown support for the application of mindset theory and mindset interventions in learning disability populations (e.g., Rhew et al., 2018).

School psychologists often work with children with learning differences who require supports, and it is important to acknowledge the differences in beliefs that these children may have in comparison to their typically developing peers. Expectations of success, reaction to failure, and level of persistence and effort all present differently in learning disability populations. Often students with learning disabilities have experienced a history of repeated failures (Grolnick & Ryan, 1990; Licht, 1983), and patterns of failure can foster a belief that one's competence is low, and failure is inevitable. When academic experiences are full of struggle, students with learning disabilities may not expect success or believe that they have any control over their achievement outcomes, ultimately decreasing levels of effort and persistence, and fostering low self-confidence (Gans et al., 2003; Nunez et al., 2005; Stone & May, 2002). Low self-confidence in students with learning disabilities, in turn, reduces motivation to participate in, and persist through, academic challenges (Morgan et al., 2008). When students do not expect to do well because they believe they lack competence, they may develop patterns of helplessness. In one study, children with learning disabilities were found to display deficits in all three areas of helplessness assessed: motivational deficits (i.e., low effort), cognitive deficits (i.e., hopelessness), and depressed affect (Sideridis, 2003). A growth mindset acts a protective factor against developing a sense of helplessness (Dweck, 2017).

Influence of Others

A low sense of competence may be fostered by parents' and teachers' responses to children with learning disabilities. One study found that pre-service teachers had more positive feedback and lower levels of frustration when students with learning disabilities displayed low levels of effort compared to other students (Woodcock & Vialle, 2016); however, by showing more sympathy and providing positive feedback for students with specific learning disabilities who expend low levels of effort, they may be unintentionally communicating the belief that these students are not capable of higher achievement, and they do not hold high expectations for them (Woodcock & Vialle, 2016).

Encouragingly, having a teacher with a growth mindset may be a protective factor for children with disabilities; teacher's mindsets remained constant in a study that used scenarios including different genders and disabilities (Gutshall, 2013). Adopting a growth mindset allows people to see the potential in all children (Dweck, 2017).

Interventions

Students with specific learning disabilities can respond positively to a growth mindset intervention (Hartmann, 2013). In a study that investigated mindsets in students with learning disabilities, grade six to eight students from an urban school district in the USA were given a mindset intervention (Rhew et al., 2018). The researchers found that those in the growth mindset intervention group significantly improved in their motivation for reading and willingness to attempt tasks related to reading in comparison to a control group (Rhew et al., 2018).

Although this early work fosters optimism for the potential of this approach for children with learning disabilities, this is a diverse population. Thus, even as modern knowledge of brain plasticity, new technology, and innovative research reveal that individuals with learning disabilities are capable of growth and development, this will look different for different individuals. Believing intelligence to be malleable does not mean that everyone has the same potential or that everyone will learn with equal ease—it means that ability can be further developed for each unique individual (Blackwell et al., 2007). Thus, implementation of approaches that foster increased motivation and promote competency requires careful consideration of what realistic expectations may be, and ways in which success can be created in ways that are well suited to each child. School psychologists are crucial in brokering this process. For instance, children with learning difficulties may benefit more from praise that focuses on finding the right learning strategies, rather than praise for effort. In her book, Dweck provides an example of how to foster a growth mindset for children with learning disabilities: “Everyone learns in a different way. Let’s keep trying to find the way that works for you” (Dweck, 2017, p. 181).

Mindsets and Mental Health

In addition to working with students with learning differences, school psychologists also often work with students with mental health challenges. An association between mindsets and mental health has been established (Yeager & Dweck, 2020), and research in this field continues to emerge. The extent to which people believe change is possible in domains related to mental health impact their ability to engage in treatment (Burnette et al., 2020), actively cope (Burnette et al., 2020), self-regulate emotions in an adaptive way (Schroder et al., 2015; Tamir et al., 2007), and experience symptom reduction (Higgins et al., 2015; Schroder et al., 2017).

Fixed mindsets are associated with increased mental health problems. Schleider et al. (2015) found that the association between youth fixed mindset and mental health problems remained regardless of type of mental health issue (e.g., internalizing vs. externalizing). When faced with adversity, youth with fixed mental health-related mindsets may be more likely to be helpless about their ability to change, and this can increase the risk for psychopathology (Schleider et al., 2015).

Alternatively, growth mindsets predict more positive emotional experiences (Burnette et al., 2013). In a recent meta-analysis, Burnette et al. (2020) found that

growth mindsets had a negative relationship to psychological distress (i.e., symptoms of depression, anxiety, stress). Furthermore, applying mindset theory to anxiety, beliefs about the malleability of anxiety were found to moderate the association between stressful life events, psychological distress, and maladaptive coping strategies, indicating that having a growth anxiety mindset may promote mental health resilience (Schroder et al., 2017).

Growth mindsets can buffer mental health problems because of the belief against the fixedness of a person's mental state (Burnette et al., 2020). For example, middle-school students who reported that they believed that emotions were in their control reported fewer depressive symptoms (Romero et al., 2014). Moreover, students with growth mindsets who reported low well-being in sixth grade were more likely than students with fixed mindsets to increase in their self-reported well-being by the end of eighth grade (Romero et al., 2014). These results suggest that beliefs about the malleability of emotions may be similar to beliefs about the malleability of intelligence in that they are most influential for students who experience emotional challenges.

Interventions

Brief online mindset interventions that include content about different types of mindsets, including personality, intelligence, and self-regulation, have been found to be effective in reducing depression and anxiety in adolescents (Schleider & Weisz, 2018). In one study, a brief, online mindset intervention called Growing Minds (www.projectgrowingminds.com) was delivered to adolescent females in rural communities. Participants who completed the intervention reported reduced depressive symptoms compared to a control group from baseline to 4-month follow-up (Schleider et al., 2020). One potential explanation for this effect is the concept of emotional tolerance; a growth mindset encourages confronting and tolerating emotional distress and promotes resilience, whereas fixed mindsets discourage feeling distressing emotions such as frustration and disappointment (Schroder, 2021).

The core concept of mindset theory emphasizes the impact of beliefs, which can be found in another type of intervention: cognitive-behaviour therapy (CBT). School psychologists are likely already familiar with CBT and can apply these same tenets to the belief of malleability of abilities. In CBT, therapists work with their clients to understand and examine core beliefs, and the mindset one holds can be described as a core belief. When students learn that their intelligence is not fixed, but instead that their brain can learn and develop, their belief is challenged, and this can lead to changes in their thinking and behaviors (Dweck, 2017). One area that has been researched is the relationship between mindsets and cognitive reappraisal, which is the ability to change the way a person thinks about an event, and is an important component of CBT (Schroder et al., 2015). Growth mindsets are positively correlated with the use of cognitive reappraisal strategies, whereas fixed mindsets are related to avoidance strategies (Schroder et al., 2015), and reduced use of cognitive reappraisal (De Castella et al., 2013).

When delivering mental health interventions, understanding an individual's mindset may present an important area for intervention. School psychologists can use a mindset questionnaire that specifically asks students about their mindset to better understand their beliefs. Examples of mindset questionnaire items can be found in the appendix of Schroder et al. (2015). Fostering student's growth mindsets regarding their mental health is consistent with the importance of eliciting hope in therapy to promote readiness for change (Howell, 2017).

Without an underlying belief that growth and change are possible, it is likely that counseling and intervention efforts will not be as effective as possible (Schleider et al., 2020). Applying mindset theory to the field of mental health is a promising avenue that may describe differences in student's resilience, mental health symptoms, sense of well-being, and treatment effectiveness.

The Role of School Psychologists

Promoting a growth mindset in students is a worthwhile endeavor to help students experience academic success and mental wellness. In particular, fostering a growth mindset in vulnerable students, including those with lower expectations of success, may help them persist through challenges (Yeager et al., 2019). School psychologists can provide support to students and school staff by using their research and clinical skills to support (1) optimal evidence informed implementation in classroom settings, (2) tailored intervention to specialized student groups, and (3) a growth mindset culture within the school environment.

Evidence Informed Implementation

School psychologists play a vital role in bringing evidence-based practices to school settings. When providing consultation and recommendations to schools, school psychologists can rely on their knowledge of evidence-based practice to provide accurate information. Recently, Dweck has addressed an increasing concern about "false growth mindsets" (Dweck, 2017), which has led to an incorrect implementation of mindset theory in school settings. Areas to consider in order to avoid "false growth mindsets" include fostering purposeful effort, providing meaningful praise, and not blaming children for their mindsets.

When fostering a growth mindset, focus should not be just on effort, but rather purposeful and meaningful effort. Sternberg (2005) noted that the major factor that determines whether people achieve expertise is not prior ability, but rather purposeful engagement. Despite the good intentions of parents and teachers, by praising success on easy tasks and providing sympathetic assistance, children may infer they have low ability, and that they should expect failure (Woodcock & Vialle, 2011). Effort needs to lead to outcomes, and students need to be able to connect their effort to achievement to foster a belief in the malleability of their abilities. When students exert effort and still endure failure, they may be even more inclined to attribute their failure to a perceived lack of intelligence (Dweck, 2017; Rhew et al., 2018).

When praising effort, the praise must be meaningful, just as the effort must be meaningful. Therefore, praise should only be given if the child is actually exerting effort, and it should not be given for not achieving outcomes (Dweck, 2017). Parents and teachers should praise students for their achievements, but ideally in a way that ties the outcome to the work the student put in, and not their personality attributes (e.g., “you studied so hard for that test and you did great on it” vs. “you are so smart”). It is important to praise what was accomplished through practice, study, persistence, and/or good strategy use (Dweck, 2017). Although praise is an influential way to promote a growth mindset, it is not the only way to positively reinforce the student’s efforts; the same message can be communicated by showing interest and asking questions.

Lastly, in some school settings children are being blamed for having a fixed mindset as a reason for struggling to learn (Dweck, 2016). Students must be encouraged with honest and helpful feedback, advice on learning strategies, and be given opportunities to revise their work and demonstrate their understanding to promote a growth mindset at school (Dweck, 2016). School psychologists can lessen the threat of a false growth mindset by communicating messaging that is in line with mindset theorist’s evidence-based recommendations.

Working With Students

School psychologists can identify students who may be more vulnerable to a fixed mindset (e.g., students with learning difficulties, mental health challenges, lower-achieving students) as possible participants for a mindset intervention. School psychologists may want to use a mindset questionnaire to measure student’s mindsets in order to better understand how student’s beliefs are impacting their psychological functioning. When working with these students, school psychologists can use mindset intervention methods such as those available from Brainology®, or by creating their own based on methods developed by researchers, such as guided reading or watching a video. Coupled with learning about neuroplasticity, students should also engage in an active form of learning such as writing letters, creating art, or teaching others. It is important to make the intervention active, rather than passive, to increase the likelihood the participant will be persuaded by the messaging (Walton, 2014). This is called “saying-is-believing” and can help students internalize the growth mindset message (Aronson et al., 2002).

Walton (2014) notes that interventions will only effect long term outcomes if they are able to change recursive processes. There are key time periods where mindset interventions will be most beneficial; for instance, at the beginning of a new school year. School psychologists can keep these ideas in mind when implementing mindset interventions with students. At the beginning of the school year, it may serve school psychologists to wonder, “how might I incorporate mindset theory into assessments, interventions, and consultations this year to target those students who can most benefit?”

For instance, school psychologists may want to build in a mindset questionnaire into their psychoeducational assessment practices to uncover the beliefs students

hold about their potential for change. Adding in a brief mindset questionnaire to assessments may provide a basis for recommendations to teachers, parents, and the student themselves on how to foster a growth mindset. Regardless of the implementation of a mindset questionnaire, recommendations based on the mindset literature, such as the importance of meaningful praise and building comfort with challenge and failure, are likely valuable to include in psychoeducational assessment reports for all students.

Promoting School Culture Changes

There are important school environment considerations that should be taken into account for mindset interventions to be most effective. When school psychologists are consulting with teachers and school staff, recommending strategies in line with growth mindset research will work to benefit all students.

The school climate that the students experience will impact whether students adopt a growth mindset (Yeager et al., 2019). Growth mindsets are heavily influenced by the environment, and it is likely that when students, especially low-achieving students, are placed in a performance-focused environment they will struggle. Indeed, one study found that children with learning difficulties perceived themselves to be incompetent only when comparing themselves to others (Renick & Harter, 1989). The environment of learning should strive to be non-judgmental, collaborative, and communicate the belief in students' potential to grow (Dweck, 2017).

Thus far the research suggests that it is the *actions* of parents, teachers, and other adults in a child's life that fosters a growth mindset, not whether or not the parent or teacher themselves have a growth mindset (Park et al., 2016; Yeager & Dweck, 2020). For example, teachers' instructional practices have been found to play a role in mindset development as early as in grades one and two. The more teachers reported emphasizing performance-oriented instructional practices in the classroom, the more students endorsed a fixed mindset (Park et al., 2016). Therefore, if the actions of the school staff, parents, and peers are congruent with a belief in growth, students will be more likely to adopt a growth mindset. The school environment should hold students to high and realistic standards, and also teach them how to achieve those standards. Rhew et al. (2018) recommended that educators consider emphasizing a curriculum that focuses on perseverance, constructive feedback, and the flexibility of intelligence to incorporate a growth mindset model.

Lastly, school psychologists work with a wide variety of individuals of differing abilities and needs, and it is important for psychologists to consider their own mindsets about certain mental health concerns, disabilities, and diagnoses. Psychologists who genuinely believe in growth not only promote that belief, but also create situations and contexts conducive to gathering evidence of such growth. As school psychologists we contribute to school climate, and thus from this foundational level may influence school policies in which growth tenets are promoted for all students. This is an opportunity to identify and implement the language of growth, in a preventative, whole-school approach. From this vantage point, school psychologists may find themselves

situated in a place where work with educators and within classrooms to leverage these ideas, along with working directly with students who may benefit greatly from mindset interventions.

Conclusions

School psychologists play a critical role in supporting healthy outcomes for all children. Although the literature related to mindset, and children with disabilities, or vulnerabilities, continues to emerge, the evidence to date certainly reveals the potential for this approach to be a foundational element of a school psychologist's practice, permeating many aspects of their work. For instance, educators may be supported in building practices into classroom activities, and in interactions with students, to action these principles. In work with those students with the greatest needs, it is possible that these concepts may hold the most promise. As school psychologists, the language of capacity and growth can be embedded into intervention and assessment practices. Imagine assessment that is predicated on ways to help access strengths. In which strategies are identified and strengths are celebrated—so that approaches to motivate and engage students are central rather than deficits alone defined. Consultations may focus on exceptions and successes, and actionable steps toward growth may be identified. In short, the school psychologist is well positioned to be the central voice shifting perspectives away from exclusive focus on challenges and barriers, and toward consideration of alternatives. We may become the voice of possibility and potential, shifting perspectives such that balanced approaches that reflect awareness of the critical nature of motivation, become central to our work.

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References

- Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology, 38*(2), 113–125. <https://doi.org/10.1006/jesp.2001.1491>
- Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*(1), 246–263.

- Burnette, J. L., Knouse, L. E., Vavra, D. T., O'Boyle, E., & Brooks, M. A. (2020). Growth mindsets and psychological distress: A meta-analysis. *Clinical Psychology Review, 77*, 101816.
- Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2013). Mindsets matter: A meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin, 139*, 655–701. <https://doi.org/10.1037/a0029531>
- Burnette, J. L., Russell, V. M., Hoyt, C. L., Orvidas, K., & Widman, L. (2018). An online growth mindset intervention in a sample of rural adolescent girls. *British Journal of Educational Psychology, 88*, 428–445. <https://doi.org/10.1111/bjep.12192>
- Canning, E. A., Murphy, M. C., Emerson, K. T. U., Chatman, J. A., Dweck, C. S., & Kray, L. J. (2020). Cultures of genius at work: Organizational mindsets predict cultural norms, trust, and commitment. *Personality and Social Psychology Bulletin, 46*(4), 626–642. <https://doi.org/10.1177/0146167219872473>
- Claro, S., Paunesku, D., & Dweck, C. S. (2016). Growth mindset tempers the effects of poverty on academic achievement. *Proceedings of the National Academy of Sciences of the United States of America, 113*(31), 8664–8668. <https://doi.org/10.1073/pnas.1608207113>
- Costa, A., & Faria, L. (2018). Implicit theories of intelligence and academic achievement: A meta-analytic review. *Frontiers in Psychology, 9*, 829. <https://doi.org/10.3389/fpsyg.2018.00829>
- De Castella, K., Goldin, P., Jazaieri, H., Ziv, M., Dweck, C. S., & Gross, J. J. (2013). Beliefs about emotion: Links to emotion regulation, well-being, and psychological distress. *Basic and Applied Social Psychology, 35*, 497–505. <https://doi.org/10.1080/01973533.2013.840632>
- Deci, E. L., Koestner, R., & Ryan, R. M. (2001). Extrinsic rewards and intrinsic motivation in education: Reconsidered once again. *Review of Educational Research, 71*(1), 1–27.
- Degol, J. L., Wang, M. T., Zhang, Y., & Allerton, J. (2018). Do growth mindsets in math benefit females? Identifying pathways between gender, mindset, and motivation. *Journal of Youth and Adolescence, 47*, 976–990. <https://doi.org/10.1007/s10964-017-0739-8>
- Dweck, C. (1998). The development of early self-conceptions: Their relevance for motivational processes. In J. Heckhausen & C. Dweck (Eds.), *Motivation and self-regulation across the life span* (pp. 257–280). Cambridge University Press.
- Dweck, C. (2006). *Mindset: The new psychology of success*. Random House.
- Dweck, C. (2016, January 11). *Recognizing and overcoming false growth mindset*. Edutopia. <https://www.edutopia.org/blog/recognizing-overcoming-false-growth-mindset-carol-dweck>
- Dweck, C. (2017). *Mindset: The new psychology of success* (updated ed.). Random House.
- Dweck, C., & Master, A. (2009). Self theories and motivation: Student's beliefs about intelligence. In K. R. Wentzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 123–140). Routledge.
- Dweck, C. S. (1999). *Self theories: Their role in motivation, personality, and development*. Taylor & Francis.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256–273. <https://doi.org/10.1037/0033-295X.95.2.256>
- Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54*(1), 5–12. <https://doi.org/10.1037/0022-3514.54.1.5>

- Gans, A. M., Kenny, M. C., & Ghany, D. L. (2003). Comparing the self-concept of students with and without learning disabilities. *Journal of Learning Disabilities, 36*, 287–295.
- Good, C., Aronson, J., & Inzlicht, M. (2003). Improving adolescents' standardized test performance: An intervention to reduce the effects of stereotype threat. *Journal of Applied Developmental Psychology, 24*, 645–662.
- Grolnick, W. S., & Ryan, R. M. (1990). Self-perceptions, motivation, and adjustment in children with learning disabilities: A multiple group comparison study. *Journal of Learning Disabilities, 23*(3), 177–184.
- Gutshall, C. A. (2013). Teacher's mindsets for students with and without disabilities. *Psychology in the Schools, 50*(10), 1073–1083.
- Hampton, N. Z. (1996). *The relationship of learning disabilities to the sources of self-efficacy expectations, and academic achievement in high school student's efficacy* [ProQuest Dissertations & Theses Global]. <https://www.proquest.com/openview/7b65e1409b6ace58c0284ae3999a7aea/1?pq-origsite=gscholar&cbl=18750&diss=y>
- Hartmann, G. M. (2013). *The relationship between mindset and students with specific learning disabilities* [Doctoral dissertation, Humboldt State University]. ProQuest Dissertations Publishing.
- Higgins, N. C., Bailey, S. J., LaChapelle, D. L., Harman, K., & Hadjistavropoulos, T. (2015). Coping styles, pain expressiveness, and implicit theories of chronic pain. *The Journal of Psychology, 149*, 737–750. <https://doi.org/10.1080/00223980.2014.977759>
- Howell, A. J. (2017). Believing in change: Reviewing the role of implicit theories in psychological dysfunction. *Journal of Social and Clinical Psychology, 36*(6), 437–460.
- Licht, B. G. (1983). Cognitive–motivational factors that contribute to the achievement of learning-disabled children. *Journal of Learning Disabilities, 16*, 483–490.
- Mangels, J. A., Butterfield, B., Lamb, J., Good, C., & Dweck, C. S. (2006). Why do beliefs about intelligence influence learning success? A social cognitive neuroscience model. *Social Cognitive and Affective Neuroscience, 1*(2), 75–86.
- Morgan, P. L., Fuchs, D., Compton, D. L., Cordray, D. S., & Fuchs, L. S. (2008). Does early reading failure decrease children's reading motivation? *Journal of Learning Disabilities, 41*(5), 387–404. <https://doi.org/10.1177/0022219408321112>
- Nunez, J. C., Gonzalez-Pienda, J. A., Gonzalez-Pumariiega, S., Roces, C., Alvarez, L., Gonzalez, P., Cabanach, R. G., Valle, A., & Rodriguez, S. (2005). Subgroups of attributional profiles in students with learning difficulties and their relation to self-concept and academic goals. *Learning Disabilities Research and Practice, 20*(2), 86–97. <https://doi.org/10.1111/j.1540-5826.2005.00124.x>
- Park, D., Gunderson, E. A., Tsukayama, E., Levine, S. C., & Beilock, S. L. (2016). Young children's motivational frameworks and math achievement: Relation to teacher-reported instructional practices, but not teacher theory of intelligence. *Journal of Education & Psychology, 108*(3), 300–313. <https://doi.org/10.1037/edu0000064>
- 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*(6), 784–793. <https://doi.org/10.1177/0956797615571017>
- Renick, M. J., & Harter, S. (1989). Impact of social comparisons on the developing self-perceptions of learning disabled students. *Journal of Education & Psychology, 81*, 631–638.
- Rhew, E., Piro, J. S., Goolkasian, P., & Cosentino, P. (2018). The effects of a growth mindset on self-efficacy and motivation. *Cogent Education, 5*(1), 1–16. <https://doi.org/10.1080/2311186x.2018.1492337>

- Romero, C., Master, A., Paunesku, D., Dweck, C. S., & Gross, J. J. (2014). Academic and emotional functioning in middle school: The role of implicit theories. *Emotion, 14*(2), 227–234. <https://doi.org/10.1037/a0035490>
- Sarrasin, J. B., Nenciovici, L., Foisy, L. M. B., Allaire-Duquette, G., Riopel, M., & Masson, S. (2018). Effects of teaching the concept of neuroplasticity to induce a growth mindset on motivation, achievement, and brain activity: A meta-analysis. *Trends in Neuroscience and Education, 12*, 22–31. <https://doi.org/10.1016/j.tine.2018.07.003>
- Saunders, S. A. (2013). *The impact of a growth mindset intervention on the reading achievement of at-risk adolescent students* [Doctoral dissertation, University of Virginia]. ProQuest Dissertations Publishing.
- Schleider, J., & Weisz, J. (2018). A single-session growth mindset intervention for adolescent anxiety and depression: 9-month outcomes of a randomized trial. *Journal of Child Psychology and Psychiatry, 59*(2), 160–170. <https://doi.org/10.1111/jcpp.12811>
- Schleider, J. L., Abel, M. R., & Weisz, J. R. (2015). Implicit theories and youth mental health problems: A random-effects meta-analysis. *Clinical Psychology Review, 35*, 1–9. <https://doi.org/10.1016/j.cpr.2014.11.001>
- Schleider, J. L., Burnette, J. L., Widman, L., Hoyt, C., & Prinstein, M. J. (2020). Randomized trial of a single-session growth mind-set intervention for rural adolescents' internalizing and externalizing problems. *Journal of Clinical Child & Adolescent Psychology, 49*(5), 660–672. <https://doi.org/10.1080/15374416.2019.16221234>
- Schroder, H. S. (2021). Mindsets in the clinic: Applying mindset theory to clinical psychology. *Clinical Psychology Review, 83*, 101957. <https://doi.org/10.1016/j.cpr.2020.101957>
- Schroder, H. S., Dawood, S., Yalch, M. M., Donnellan, M. B., & Moser, J. S. (2015). The role of implicit theories in mental health symptoms, emotion regulation, and hypothetical treatment choices in college students. *Cognitive Therapy and Research, 39*, 120–139.
- Schroder, H. S., Yalch, M. M., Dawood, S., Callahan, C. P., Brent Donnellan, M., & Moser, J. S. (2017). Growth mindset of anxiety buffers the link between stressful life events and psychological distress and coping strategies. *Personality and Individual Differences, 110*, 23–26. <https://doi.org/10.1016/j.paid.2017.01.016>
- Schunk, D. H., Pintrich, P. K., & Meece, J. L. (2008). *Motivation in education: Theory, research, and applications* (3rd ed.). Pearson Education Inc.
- Sideridis, G. D. (2003). On the origins of helpless behavior of students with learning disabilities: Avoidance motivation? *International Journal of Educational Research, 39*(4–5), 497–517.
- Sternberg, R. J. (2005). Intelligence, competence, and expertise. In C. Dweck & A. Elliot (Eds.), *Handbook of competence and motivation* (pp. 15–30). The Guilford Press.
- Stone, C. A., & May, A. L. (2002). The accuracy of academic self-evaluations in adolescents with learning disabilities. *Journal of Learning Disabilities, 35*, 370–383.
- Tamir, M., John, O. P., Srivastava, S., & Gross, J. J. (2007). Implicit theories of emotion: Affective and social outcomes across a major life transition. *Journal of Personality and Social Psychology, 92*, 731–744. <https://doi.org/10.1037/0022-3514.92.4.731>
- Walton, G. M. (2014). The new science of wise psychological interventions. *Current Directions in Psychological Science, 23*(1), 73–82.
- Wigfield, A., & Wagner, A. L. (2007). Competence, motivation and identity development during adolescence. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 222–239). Guilford Press.

- Woodcock, S., & Vialle, W. (2011). Are we exacerbating students' learning disabilities? An investigation of preservice teachers' attributions of the educational outcomes of students with learning disabilities. *Annals of Dyslexia, 61*, 223–241.
- Woodcock, S., & Vialle, W. (2016). An examination of pre-service teachers' attributions for students with specific learning difficulties. *Learning and Individual Differences, 45*, 252–259.
- Yeager, D. S., & Dweck, C. S. (2020). What can be learned from growth mindset controversies? *American Psychologist, 75*(9), 1269–1284.
- Yeager, D. S., Hanselman, P., Walton, G. M., Murray, J. S., Crosnoe, R., Muller, C., Tipton, E., Schneider, B., Hulleman, C. S., Hinojosa, C. P., Paunesku, D., Romero, C., Flint, K., Roberts, A., Trott, J., Iachan, R., Buontempo, J., Yang, S. M., Carvalho, C. M., . . . Dweck, C. S. (2019). A national experiment reveals where a growth mindset improves achievement. *Nature, 573*, 364–369. <https://doi.org/10.1038/s41586-019-1466-y>
- Yeager, D. S., Romero, C., Paunesku, D., Hulleman, C. S., Schneider, B., Hinojosa, C., Lee, H. Y., O'Brien, J., Flint, K., Roberts, A., Trott, J., Greene, D., Walton, G. M., & Dweck, C. S. (2016). Using design thinking to improve psychological interventions: The case of the growth mindset during the transition to high school. *Journal of Education & Psychology, 108*(3), 374–391.
- Yeager, D. S., & Walton, G. M. (2011). Social-psychological interventions in education. *Review of Educational Research, 81*(2), 267–301.
- Zanin, A. C., Adame, E. A., Niess, L. C., & Martinez, L. V. (2020). Negotiating identity and the development of incremental mindset in a female adolescent sport context. *Journal of Applied Sport Psychology, 1–25*. <https://doi.org/10.1080/10413200.2020.1783389>
- Zhao, W., & Dweck, C. S. (1994). *Implicit theories and vulnerability to depression-like responses* [Unpublished manuscript]. Columbia University.

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