
If I Only Had A Brain: The Role Of Self-Efficacy In Student Achievement

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Abstract

My guess is that nearly everyone reading this article has at some point seen the movie The Wizard of Oz. If you have, you can probably picture in your mind the Scarecrow dancing along the Yellow Brick Road singing about how much better his life would be if only he had a brain. As you recall, he and the other characters embark on a journey to the Emerald City where the “all powerful” Wizard of Oz would grant their wishes, the Scarecrow’s of course being to have a brain.

Keywords: *Brain, wizard, probably, picture, course.*

Introduction

And what does the Wizard of Oz do for the Scarecrow? He illustrates all of the specific instances in which the Scarecrow demonstrated that he does in fact already have a brain. The Wizard may not have been “all powerful”, but at the very least he was a master solution-focused counselor. My point, as well as the message of the movie, is that the Scarecrow and the other characters already had many of the skills that they needed to be successful, they just didn’t believe in themselves. However, once they established a positive self-concept they were able to set new goals for themselves and presumably achieve more desirable outcomes.

Now as compelling as the message from the *Wizard of Oz* might be in its own right, a host of research in the areas of competence and sense of efficacy demonstrates that a student’s perceptions of themselves as capable learners do in fact lead to higher levels of academic achievement. A formal theory describing the relationship between one’s sense of competence on a given task and their level of performance was first introduced by Bandura in 1977. Bandura used the term *self-efficacy* to describe the concept of an individual’s sense of competence in achieving a

goal or performing a specific task (Bruning, Schraw, Norby, & Ronning, 2004; Zimmerman, 2000). Sense of efficacy is therefore different than self-concept which is a global phenomenon that refers to one’s beliefs about themselves in general (Zimmerman, 2000). In terms of students’ academic performance, since self-efficacy is task specific, a student’s sense of competence in one subject does not necessarily transfer to others (Bruning, Schraw, Norby, & Ronning, 2004). In other words they may perceive their self as capable readers but poor at math.

Understanding the development of self-efficacy is critical for educators because self-efficacy is strongly associated with “task engagement, persistence, strategy use, [and] help seeking” (Bruning, Schraw, Norby, & Ronning, 2004, p. 113). In addition, perceptions of self-competence have been found to predict students’ “rate of performance and expenditure of energy” (Zimmerman, 2000, p. 86), and students with high self-efficacy participate more frequently and put forth greater effort than less efficacious students (Schunk, 2003; Schunk & Zimmerman, 2007). As a result, students with high levels of self-efficacy typically reach higher levels of academic achievement (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Bruning, Schraw, Norby, & Ronning, 2004, p. 113; Schunk, 2003; Schunk & Zimmerman, 2007; Zimmerman, 2000).

Attribution Of Outcomes

Student's self-efficacy is often affected by their beliefs regarding the underlying causes of successful outcomes. Students that subscribe to the belief that success is the result of learning and effort are more likely to adopt problem solving strategies that are taught to them, resulting in higher levels of performance and in turn higher self-efficacy (Schunk & Zimmerman, 2007). On the other hand, students that hold a belief that ability is a "fixed" trait may be less receptive to learning strategies because they believe their performance results from innate characteristics (Schunk & Zimmerman, 2007). The reverse is also true. Students with high self-efficacy are more likely to attribute failures to a lack of effort whereas students with low self-efficacy are more likely to attribute such outcomes to low ability (Bruning, Schraw, Norby, & Ronning, 2004).

Each and every one of us holds beliefs about the nature of intelligence, whether we are aware of it or not. For many of us in the United States, at least most of us who adhere to mainstream cultural beliefs, "intelligence" is believed to be a fixed biological trait. This may be an implicit belief, in other words one that we do not think about consciously. However, it may nevertheless be a premise underlying our conscious thoughts and actions. As a school psychologist I cannot count the number of times that I have heard a parent make a statement such

as "Brittany has never been good at math. She gets that from me. I always struggled with math too". A parent that makes this statement, though perhaps never saying so explicitly, believes that intellectual abilities are "hard wired" and are passed down genetically from one generation to the next. If Brittany believes that she is bad at math and will always be bad at math no matter how hard she tries, just like her mom, what in the world is going to motivate her as a student to put forth the effort necessary to master the mathematical principles she is learning in class.

Contrary to the example above, research has demonstrated that learners whose underlying assumption is that intelligence is modifiable actively seek to improve their competence with various tasks, including those with which they have historically struggled. For example, Blackwell, Trzesniewski, and Dweck (2007) found that middle school students who were taught that the process of learning improves intelligence, and actually creates physical changes within the brain, were found to work harder and earn better grades than similar students who were not taught these lessons. When students are taught that high academic achievements are the result of effort and strategy use, as opposed to inherent ability, they are more likely to "perceive greater progress, maintain high motivation, and [report] greater efficacy for future learning" (Zimmerman, 2000, p. 89). Conversely, students who do not believe

they can control outcomes through their own effort are left with little or no reason to try (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996).

Mediating Interventions

An individual's sense of efficacy is a product of both their history of experience with a given task as well as their interactions with others including their teachers and parents (Zimmerman, 2000). Since students measure their capabilities against their own performance on tasks (Schunk, 2003), successful performances increase students' self-efficacy while failures typically leads to diminished perceptions of self-competence (Bruning, Schraw, Norby, Ronning, 2004). As a result, students with a history of failure in a particular subject may perceive themselves as incapable of future successes. However, beliefs of self-competence can be mediated through social interactions, even in the face of challenges. Therefore, in order to understand students' intellectual and academic development, and provide necessary intervention, one must take into account the social interactions that the student is a part of (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996).

Teachers and parents hold perceptions of students' academic capabilities which they convey both explicitly and implicitly (Cognitive Research Program, 1996). In turn, the messages that

students receive regarding their academic capabilities impact their own sense of competence and ultimately their academic performance. Bouchev and Harter (2005) examined the relationship between the messages students receive from teachers, parents, and peers and the students' own perceptions of their capabilities in the areas of math and science. They found that the messages that students received from their teachers and parents influenced their self-perceived capabilities in these subjects. Furthermore, students' self-perceptions in turn had a direct impact on academic performance. Interestingly, while the messages that students received from their teachers and parents predicted their self-perceptions, this was not found to be true with regard to students' peers. Given the tremendous influence that we as educators have over students' self perceptions and academic achievement, it is critical that we establish caring relationships with our students and make intentional efforts to maximize their sense of efficacy.

Value of Tasks. Students' sense of competence in a subject area does not in itself result in high levels of achievement. Students must have the requisite skills and knowledge in that subject and believe that the learning which they are engaged in is valuable (Schunk, 2003). Students often times do not show interest, and therefore fail to engage, in activities that are perceived to have

little or no value or meaning (Schunk & Zimmerman, 2007). Consequently, when introducing subject matter to students we as educators must demonstrate the importance of the learning activity in order to make it personally meaningful to the learner. Such efforts may in turn result in higher levels of student engagements and ultimately higher levels of self-efficacy as well.

Setting Goals. Setting goals is a central component in motivating students and building self-efficacy (Schunk, 2003). Goals do not, in and of themselves, improve one's learning; however, goals provide students with a direction and the incentive to persevere in the face of challenge (Bruning, Schraw, Norby, & Ronning, 2004). When students set goals and evaluate their progress, the outcomes of their effort become visible (Schunk, 2003). As discussed above, when students recognize that increased effort results in higher academic performance, self-efficacy and motivation increase as a result. The most effective goals are those which address specific content standards and are achievable in a relatively short period of time (Bruning, Schraw, Norby, & Ronning, 2004; Schunk, 2003). Conversely, setting general goals such as "do your best" as well as long-term objectives do little to increase motivation or students' self-perceived competence (Schunk, 2003). Furthermore, when students set their own goals they are more likely to persist in meeting the challenge, again resulting in

higher levels of achievement and self-efficacy (Zimmerman, 2000).

Modeling. An effective strategy for promoting self-efficacy is through the observation and emulation of models (Schunk, 2003; Schunk & Zimmerman, 2007). Simply put, a model is an individual that demonstrates the steps of a task to a novice (Bruning, Schraw, Norby, & Ronning, 2004). When observing a model, students learn the sequence of steps which lead to a successful outcomes by patterning "their thoughts, beliefs, and behaviors, after those displayed" (Schunk & Zimmerman, 2007). In terms of increasing self-efficacy, it appears as though comparable peers may serve as the best models (Bruning, Schraw, Norby, & Ronning, 2004; Schunk, 2003). When a student observes a comparable peer successfully completing a task they are more likely to perceive themselves as capable of a similar level of performance. Nevertheless, teachers are important models as well, particularly since they are often the only ones that can effectively model novel and complex tasks (Bruning, Schraw, Norby, & Ronning, 2004).

Feedback. An essential component of modeling is providing feedback (Bruning, Schraw, Norby, & Ronning, 2004). The most effective type of feedback is that which not only highlights the outcomes of one's performance but intentionally addresses the steps or activities which lead to successful outcomes (Bruning, Schraw,

Norby, & Ronning, 2004). Feedback may be particularly effective in raising students' self-efficacy when it reinforces students' competence and conveys that further improvement will result from continued effort and strategy use (Schunk, 2003). Dweck (2006) refers to this as process praise, in which the student is praised for the process that lead to successful outcomes, in other words their effort and strategy use, as opposed to praising success based on innate ability, such as "wow, you're really smart". Ultimately, students develop the skills to provide feedback to them in order to regulate their behavior, monitoring and adjusting their performance as needed to successfully complete a task (Bruning, Schraw, Norby, & Ronning, 2004).

Persuasive Statements. Students' may reach higher levels of self-efficacy when teachers encourage them by conveying that they are capable of mastering a task. However, higher levels of self-efficacy that result from persuasive statements are contingent upon future success (Bruning, Schraw, Norby, & Ronning, 2004; Schunk, 2003; Schunk & Zimmerman, 2007). In other words, if a student successfully completes the given task their level of self-efficacy will be maintained but if they fail to reach their goal they may then discredit the teacher's efforts. Consequently, it is important to highlight any degree of success that the student achieved as a result of their effort, even if it is only an

incremental step towards the student's ultimate goal.

Intentionality And Reciprocity

An essential component of building a student's sense of efficacy is establishing a reciprocal relationship between that student and their "teacher". I use the word teacher here in quotations because many people serve as teachers even if they are not the classroom instructor. Within a reciprocal relationship the "teacher" makes explicit to the student their intention to promote the child's success in mastering the task at hand. For example, a teacher might say "if this gets difficult, I'm going to help you because I want you to be successful. If it's still hard after that, I'm going to help you again because I want you to be successful." In turn, the student reciprocates these efforts by attending to the lesson and actively working to internalize the new skills (Cognitive Research Program, 1996). In terms of developing students' self-perceived competence, a sense of reciprocity between the teacher and student sets the groundwork for goal setting, modeling, feedback, and persuasive statements, resulting in a greater likelihood that these strategies will successfully promote higher levels of performance and self-efficacy.

Mediating Interventions Across Contexts

Much of the research discussed above focused exclusively on developing self-efficacy within the classroom context. However, since students spend the majority of their time outside of school, at home and in their community, it is important to discuss strategies for building a sense of competence and self-efficacy across contexts. Many of the strategies that have been developed for teachers certainly apply for parents as well. For example, parents can strengthen their child's sense of competence by praising their use of problem solving strategies, explicitly stating the underlying reasons behind their child's success, and highlighting their child's progress towards reaching goals (Cognitive Research Program, 1996).

As discussed above, self-efficacy is task specific and high self-efficacy in one domain does not necessarily transfer across to other skill areas. However, many of the skill underlying successful problem solving transcend across academic subjects and problem solving situations. By working with their children on setting goals and monitoring progress, using problem solving strategies, and identifying approaches that lead to successful outcomes, parents can support the development of self-competence in problem solving behaviors that support success across various activities, including those required of students in school. These skills exist apart from

content specific knowledge, and as educators we can work with parents build bridges between home and school, promote process oriented praise, and develop general problem solving skills across contexts.

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