

"Teacher as Researcher" Literature Review  
for EDG 6415: Princ of Instruction & Class Management

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Diminishing student motivation and academic success, especially associated with lack of effort, is an ongoing concern for teachers nationwide. The factors that contribute to seemingly apathetic behavior has long been a subject of debate among educational researchers. One increasingly popular line of research attributes a number of maladaptive student behaviors to a psychological cause: the possession of a “fixed” mindset, which is based upon the belief that mental resources such as intelligence and willpower are static and limited. Those who adopt the fixed mindset tend to believe that the personal capacity for these resources cannot be changed through effort (Yeager, Romero, Paunesku, Hulleman, Schneider, Hinojosa, Lee, O’Brien, Flint, Roberts, Trott, Greene, Walton & Dweck, 2016). The counterpoint to the fixed mindset is the “growth mindset,” which claims that intelligence is not a limited resource, and can be increased incrementally through consistent effort and engagement. A related application of the growth mindset to self-discipline demonstrates that willpower itself has no arbitrary limit; the capacity of a person to exercise willpower is influenced primarily by personal belief (Job, Walton, Bernecker & Dweck, 2013). Research suggests that leading students to question the fixed mindset belief has the potential to lessen its damaging influence on a variety of motivational and academic success factors.

Researchers like Carol Dweck argue that “if students believe their intelligence is something they can develop, they’re much more risk-taking and resilient than students who believe their intelligence is fixed” (Gupta, 2013). Her theory is based on a number of studies examining the effect of intelligence theory on student performance, only a small number of which are discussed here. In one such study, the performance of 400 students ages 10-11 were compared after receiving different forms of praise (intelligence-based, process-based, and

generic). In this study Dweck found that, counter to conventional wisdom, praise would sometimes lead to reduced student effort (Mueller & Dweck, 1998). “Students who were praised for their intelligence did not want to take on a challenging task afterward. They wanted to play it safe... when someone praises your intelligence, that's what becomes valuable” (Gupta, 2013). The intelligence-based praise resulted in anxious, performance-oriented students. These students valued their “intelligent” designation so much that it raised the stakes on their performance and made them less likely to engage in educational risk-taking for fear of failure. The resulting risk-aversion was so pervasive that students were sometimes dishonest about their performance (Mueller & Dweck, 1998). Furthermore, students subjected to intelligence-based praise were less persistent, more anxious, and experienced less enjoyment as compared to the students who received specific and relevant process-based praise (Mueller & Dweck, 1998).

In a five-year longitudinal study of 373 students, Blackwell, Trzesniewski & Dweck correlated the motivational profiles of students in 7th grade with mathematics achievement throughout their high school career (2007). Motivation was measured through a survey covering “implicit theories of intelligence, goal orientation, beliefs about effort, and attributions and strategies in response to failure” (Blackwell, Trzesniewski & Dweck, 2007), where the fixed theory of intelligence was associated with potentially less productive motivational factors. This association had been observed through previous studies, but was again confirmed through the use of a measurement model which was fit to a process model. This statistical analysis again showed that the measured motivational factors correlated with intelligence theory (all except learning goals): “an incremental theory of intelligence, learning goals, positive beliefs about effort, non helpless attributions, and strategies in response to failure *formed a network of interrelated*

*variables* [emphasis added]” (Blackwell, Trzesniewski & Dweck, 2007). The analysis also showed that motivational factors were a much better predictor of scores and score improvement in 7th and 8th grade than were math scores from the previous grade (Blackwell, Trzesniewski & Dweck, 2007).

Another interesting observation of the Blackwell et. al. study is the influence of motivational factors at different grade levels. While motivational profiles were not highly correlated with score records from the previous year (6th grade), a correlation clearly emerged as students entered junior high school, both in tangible scores and score improvement over time (Blackwell, Trzesniewski & Dweck, 2007). It appears, then, that timing is an important factor; the damage done by the fixed mindset may not manifest until the later grades, but thereafter may have a devastating effect (Yeager et. al, 2016). Therefore, mindset interventions would be most effective when performed prior to the start of middle and/or high school.

Certainly, we’ve seen that student effort and educational risk-taking can be encouraged by the growth mindset, but can it be sustained? A truly successful student is a tenacious one, who can persevere and exercise willpower to continue engaging in the challenging tasks they take on. In a 2013 study, Job et. al. debunked the belief that willpower is a limited resource that can be refueled by eating sugar (2013). Two groups of study subjects were used, one with a belief in limited (inherent, fixed) willpower, and one with a belief in non-limited willpower. Both groups performed equally well after being provided with a sugary drink, but the group who maintained the non-limited theory performed equally well when being provided with a non-sugary drink, while the “fixed” theory group did more poorly under these conditions (Job et. al., 2013). According to Dweck, a co-author of this study, “If people believe that their willpower is limited

they show much poorer self-control than people who believe that their willpower is a large, self-generating resource” (Gupta, 2013).

The implication of this and similar research is clear: attitude and belief affect performance in a nocebo-like way, and those who believe in fixed or limited resources perform more poorly than their more flexible, self-reliant peers. The relationship between the “limited willpower” belief and the “fixed intelligence” belief is a shared core assumption that psychological attributes are innate, unchangeable, and finite. As these two issues stem from the same assumptions, it would be reasonable to conclude that challenging one belief would challenge the other. This could be a subject for further research.

The research on growth mindset taken as a whole shows that employing growth-based theories of intelligence, especially during transitional moments in a student’s educational career, demonstrably improves academic outcomes overall. While it may be that specific learning in one area does not always translate to improvements in others (known as the transfer problem), the opposite is true of psychological factors: belief is a particularly powerful influence on human behavior, and carries across domains in ways that specific learning sometimes cannot.

In conclusion, the growth mindset offers a powerful tool to influence student achievement and motivation: “theories of intelligence can be manipulated in real-world contexts and have a positive impact on achievement outcomes” (Blackwell, Trzesniewski & Dweck, 2007). Effective strategies to encourage a growth mindset are numerous, and as interest in the model increases, strategies are being refined to strengthen the message. Best practices for priming students with this mindset include: presenting the ideas in a real-world context; using relevant (human, age-specific) examples of the growth mindset in action (instead of vague or animal-based ones);

delivering the concepts through statements of peers and respected celebrities; and reinforcement through having students explain the concepts to others (Yeager et. al, 2016). However, teachers can themselves promote the growth mindset quite simply through carefully controlled praising. Ideal praise should focus on the performance of desired actions and attitudes (such as good engagement with material and pro-educational academic risk-taking), rather than on grades alone. Praise should also be timely, specific and attributed to student *effort* rather than innate characteristics (Gupta, 2013; Mueller & Dweck, 1998). Through careful and continued practice of these strategies by teachers, parents, and educational support staff, students can enjoy more success, benefit from more challenging curricula, and derive more enjoyment from their schooling.

## References

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