Effects of Mindset on Student Growth and Achievement

Jason A. Harmon

Chadron State College

April 3rd, 2013

Table of Contents

Page

Abstract 3

Introduction 4

Statement of the Problem 5

Review of Related Literature 5

Early Research 5

Recent Research 7

Implications on Education Today 9

Conclusion 12

Statement of the Hypothesis 12

References 13

Abstract

This paper reviews the literature and research that has been done on mindset and its effect on student growth and achievement. Starting in the 70’s and 80’s researchers were coming to an understanding of the psychological factors that affected motivational processes in human beings. What is now referred to as growth mindset used to be referred to as adaptive motivational patterns. A growth mindset is when people believe that their most basic abilities can be developed through dedication and hard work. Other people have what we refer as a fixed mindset, where they have such a high belief in talent and natural ability that they stop putting forth effort when things don’t come easily. Our interest has been how mindset effects students, but we also explore other implications of these findings on education today. From the research we can conclude that mindset is a determining factor in student achievement and growth. We hope to test this and prove our hypothesis that there is a strong correlation between students’ mindsets and their continued academic growth and achievement.

Effects of Mindset on Student Growth and Achievement

Introduction

Psychological science points to several variables associated with outstanding achievement. One of these is mindset (Subotnik, 2011). This is a topic that has been researched extensively by Dr. Carol Dweck (2006) and her team from Stanford University. They have proven how valuable a growth mindset is in the development of each person. According to Dewck (1999), A growth mindset is when people believe that their most basic abilities can be developed through dedication and hard work; brains and talent are just the starting point. This view creates a love of learning and a resilience that is essential for great accomplishment. Other people have what is referred to as a fixed mindset. Those people with a fixed mindset believe their basic qualities, like their intelligence or talent, are simply fixed traits. They spend their time documenting their intelligence or talent instead of developing them. Actually, they believe that talent alone creates success, without effort (Dweck, 2006). The intent of this study is to find out how a students’ mindset affects their growth and achievement.

Although it has been proven that teaching mindset through a program created called Brainology can improve a students growth mindset (Donohoe, Topping, & Hannah, 2012), this study will help us understand how mindset, regardless of training is affecting students now. As we understand this, we can know how critically important it will be to teach these concepts of a growth mindset to our students, parents, teachers, and communities.

Statement of the Problem

We are seeing an increased number of students in our school who seem to care less about their education. As a push is being made for common core, and focusing on what students really need to learn, we can’t ignore the underlying problems that affect students motivation and belief in their ability to learn and grow. Students with a growth mindset believe in their ability to learn, grow, and improve through effort and hard work. Those with a fixed mindset stop trying if they feel that they don’t have the innate talent or ability. Much of this research was done by Dweck (2006), and is explained in her book, Mindsets: The Phycology of Success. The purpose of this study is to find out how much of the data we receive from MAPS testing correlates to student’s mindsets. MAPS tests are taken three times a year, and track students growth and achievement in the major academic areas of Reading, Math, and Science. If our findings are positive we will know how vital it is to train all stakeholders about growth mindsets.

Review of Related Literature

Most research on effective learning and performance of cognitive tasks looks at the mental skills required to succeed at those tasks. The focus of this review will be on the motivational processes that affect success on cognitive tasks such as success in school and education. We desire to focus on psychological factors other than ability that determine how effectively an individual acquires and uses skills. We will take you through the early research and ideas from the 1970’s and 80’s, into the more recent research on what has become known as mindset, and lastly we will take a look at the implications of this research on education today.

Early Research

It has long been known that factors other than ability influence whether children seek or avoid challenges, whether they persist or withdraw in the face of difficulty, and whether they use and develop their skills effectively (Dweck, 1986). Many researchers believe that the basics of what motivates kids is poorly understood. Many “commonsense” beliefs are being called into question. One example of such beliefs is the belief that large amounts of praise and success will establish and maintain changing patterns in children. Others believe that “brighter” or “smarter” children are more likely to choose tasks that are challenging, or to persist in the face of difficulty.

In the past, a dramatic change took place in the study of motivation, which helped us to get a clearer understanding of motivational phenomena. Research shifted to an emphasis on cognitive mediators, or how children construe a situation, interpret events in a situation, and process information about a situation (Dweck, 1986). Although the research that you will find documented below focuses on these cognitive mediators, please know that the research doesn’t ignore external mediators.

The study of motivation deals with the causes of goal-oriented activity (Beck, 1983). Achievement motivation involves particular goals, and these goals fall into two categories: (a) learning goals, in which individuals seek to increase their competence, to understand or master something new, and (b) performance goals, in which individuals seek to gain favorable judgments of their competence or avoid negative judgments of their competence (Dweck & Elliott, 1983).

In the older research, what is known today as the Growth mindset was referred to as adaptive motivational patterns. Adaptive motivational patterns are those that promote the establishment, maintenance, and attainment of personally challenging and personally valued achievement goals. Maladaptive patterns (similar to a fixed mindset), are associated with a failure to establish reasonable, valued goals, to maintain effective striving toward those goals, or ultimately, to attain valued goals that are potentially within one’s reach (Dweck, 1986).

Researchers have clearly documented adaptive and maladaptive patterns of achievement behavior. The adaptive (“mastery-oriented”) pattern is characterized by challenge seeking and high, effective persistence in the face of obstacles. Children displaying these patterns appear to enjoy exerting effort in the pursuit of task mastery and growth. To contrast this, the maladaptive (“helpless”) pattern is characterized by avoiding challenge, and low amounts of persistence in the face of difficulty. The sad thing is that these children experience negative effects such as anxiety and negative self-cognition when confronting obstacles (e.g., Ames, 1984; Diener & Dweck, 1980). Although children displaying these different patterns do not differ in intellectual ability, these patterns can have a profound effect on student growth and achievement (Dweck 1986).

Recent Research

From this point on the adaptive motivational pattern will be referred to as the growth mindset, and the maladaptive patterns will be referred to as the fixed mindset. We hope you will be able to see not only how important this research is, but how it has progressed through the years, and its implications in education today.

Research shows that people who have a fixed mindset about their traits, such as intelligence, tend to avoid challenges for fear of appearing to be unintelligent (Blackwell, Trezsniewski, & Dweck, 2007; Robins & Pals, 2001). These same people are less resilient when faced with challenges and setbacks. They see setbacks as a lack of their ability, and become defensive or discouraged (Blackwell et al., 2007; Hong, Chiu, Dweck, Lin, & Wan, 1999; Robins & Pals, 2001). On the other hand, the people who believe their qualities can be developed seek challenges, and are more resilient with setbacks. These setbacks are seen to them as an important part of learning (Dweck, 2010). The passion for stretching yourself and sticking to it, even (or especially) when it’s not going well, is the hallmark of the growth mindset. This is the mindset that allows people to thrive during some of the most challenging times in their lives (Sternberg, 2005).

It has been found that a key part of a growth mindset is the idea that ability is malleable. Ability must be viewed as something that can be changed with effort. Challenge shouldn’t be seen as threatening, but rather as an opportunity to develop competence. Indeed, an incremental mindset is associated with mastery-oriented responses to challenge, such as heightened persistence, effective strategy use, and positive affect. (e.g., Blackwell et al., 2007; Hong et al., 1999). Robert Sternberg (2006), the present-day guru of intelligence, writes that the major factor in whether people achieve expertise “is not some fixed prior ability, but purposeful engagement”

There are those who disdain effort. A report from Duke University sounds an alarm about the anxiety and depression among female undergraduates who aspire to “effortless perfection.” They believe they should display perfect beauty, perfect womanhood, and perfect scholarship all without trying (or at least without appearing to try) (Dweck, 2006).

Dweck (2006) has learned that people can have different mindsets in different areas. She gives the example that some people might believe their artistic abilities are fixed, but their intelligence can be developed. She goes on to say that they have found that whatever mindset people have in a particular area will guide them in that area.

The growth mindset allows people to love what they’re doing-and to continue to love it in the face of difficulties. It’s ironic: The top is where the fixed-mindset people hunger to be, but it’s where many growth-minded people arrive as a by-product of their enthusiasm for what they do (Dweck, 2006). Dweck says that this point is crucial, that the fixed mindset is all about outcome. If you fail, or if you’re not the best, it’s all been wasted. The growth mindset allows people to value what they’re doing regardless of the outcome. They’re tackling problems, charting new courses, working on important issues, and through it all the journey is meaningful and fulfilling.

Although hundreds of studies have been done to test mindset, I will give one specific example. Joseph Martocchio (1994) conducted a study of employees who were taking a short computer-training course. Half of the employees were put in a fixed mindset. He told them it was all a matter of how much ability they possessed. The other half were put in a growth mindset. He told them that computer skills could be developed through practice. Everyone then proceeded with the course.

Although the two groups started off with exactly the same confidence in their computer skills, by the end of the course they were quite different. Those in the growth mindset gained considerable confidence in their computer skills as they learned, despite the many mistakes they inevitably made. But, because of those mistakes, those with the fixed mindset actually lost confidence in their computer skills as they learned (Martocchio, 1994)!

Implications of Research on Education Today

Obviously not everyone is created equal, and we all have different abilities and interests, but mindset can have a great impact on students. A remarkable find for the growth mindset is the fact that you don’t already have to be good at something to plunge into it wholeheartedly, stick to it, and enjoy it (Dweck, 2006).

Marva Collins (1990) took inner city Chicago kids who had failed in the public schools and treated them like geniuses. Many of them had been labeled “learning disabled,” “retarded,” or “emotionally disturbed.” Virtually all of them were apathetic. No light in the eyes, no hope in the face.

Collins’s second-grade public school class started out with the lowest-level reader there was. By June, they reached the middle of the fifth-grade reader, studying Aristotle, Aesop, Tolstoy, Shakespeare, Poe, Frost, and Dickinson along the way (Collins, 1990)

Not only has mindset been found to affect children directly, the mindset of their parents and teachers also has been shown to have a great effect on them. In a study by Moormand and Pomerantz (2010) it was found that mothers induced to hold a fixed mindset displayed higher unconstructive involvement in children’s learning. They found that mindsets about the malleability of ability influence the quality of parents’ involvement in children’s learning.

An article by Dweck (2011) shows that an emphasis on growth not only increases intellectual achievement, but can also advance conflict resolution between long standing adversaries, decrease chronic aggression, foster cross race relations, and enhance willpower (Dweck, 2011). Dweck debates that the hallmark of human nature is each person’s great capacity and ability to adapt, to change, and to grow. Work and research in neuroscience increasingly attests to the remarkable power and plasticity of the brain as it develops into adulthood (Doidge, 2007).

Research shows that teaching a growth mindset can boost ones motivation and achievement significantly during challenging academic changes and transitions (Aronson, Fried, & Good, 2002; Blackwell et al., 2007; Good, Rattan, & Dweck, 2003). Also, a growth mindset helps students to avoid and prevent negatively stereotyping themselves, an act which can undermine achievement (Aronson et al., 2002). Three recent studies Aronson, (2002), Good (2003), and Dweck (2007), have shown that teaching students a growth mindset results in increased motivation, better grades, and higher achievement test scores.

Mindset has been found to have a dramatic impact on perfectionists. Those perfectionists with a growth mindset are a lot more healthy and happy. Those with fixed mindsets were less healthy and happy (Chan, 2012).

Dweck (2006), has found that a successful student is one whose primary goal is to expand their knowledge and their ways of thinking, and investigating the world. They do not see grades as an end in themselves but as a means to continue to grow. Similarly she has found that great teachers believe in the growth of talent and intellect, and are fascinated by the process of learning. Bruce Jenner, the 1976 Olympic gold medalist in the decathlon says, “If I wasn’t dyslexic, I probably wouldn’t have won the Games. If I had been a better reader, then that would have come easily, sports would have come easily…and I never would have realized that the way you get ahead in life is hard work (McGovern & Shelly, 2000).” We know that creativity and excellence is not a magical act of inspiration. It’s the result of hard work and dedication.

Bloom (1985), an eminent educational researcher, studied 120 outstanding achievers. They were concert pianists, sculptors, olympic swimmers, world-class tennis players, mathematicians, and research neurologists. Most were not that remarkable as children and didn’t show clear talent before their training began in earnest. Even by early adolescence, you usually couldn’t predict their future accomplishment from their current ability. Only their continued motivation and commitment, along with their network of support, took them to the top.

Bloom stated, “After forty years of intensive research on school learning in the United States as well as abroad, my major conclusion is: What any person in the world can learn, almost all persons can learn, if provided with the appropriate prior and current conditions of learning (Bloom, 1985).”

Conclusion

Clearly, there is a vast difference between those with growth and fixed mindsets. Although mindset has already been shown to make a difference for success in students’ academic growth and achievement (Dweck, 2011), and Dweck has come up with a vast training program to help guide teachers and students to a growth mindset, I believe that more research still needs to be done. It has been proven that beliefs can change, but how do a persons beliefs right now and in the past affect their growth? My attempt will be to measure this.

Statement of the Hypothesis

The research leads one to believe that a growth mindset is critical to student growth and achievement. We want to know just how critical it is, and how strongly they correlate, so we can implement growth mindset training programs for our students. It is hypothesized that there is a strong correlation between students’ mindsets and their continued academic growth and achievement.

References

Ames, C. (1984). Achievement attributions and self-instructions under competitive and individualistic goal structures. Journal of Educational Psychology, 76, 478-487.

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, 113-125. Doi:10.1006/jesp.2001.1491

Beck, R. C. (1983). Motivation: Theories and principles. Englewood Cliffs, NJ: Prentice-Hall.

Blackwell, L., Trzesniewski, K., & 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.

Bloom, B. (1985). Developing Talent in Young People. New York, NY: Ballantine Books.

Chan, D. W. (2012). Life satisfaction, happiness, and the growth mindset of healthy and unhealthy perfectionists among Hong Kong Chinese gifted students. Roeper Review, 34(4), 224-233. doi: 10.1080/02783193.2012.715333

Collins, M. (1990). Marva Collins’ Way: Returning to Excellence in Education. Los Angeles, CA: Jeremy Tarcher.

Diener, C. I., & Dweck, C. S. (1980). An analysis of leaned helplessness: II. The processing of success. Journal of Personality and Social Psychology, 39, 940-952.

Doidge, N. (2007). The brain that changes itself: Stories of personal triumph from the frontiers of brain science. New York, NY: Penguin Books.

Donohoe, C., Topping, K., & Hannah, E. (2012). The impact of an online intervention (brainology) on the mindset and resiliency of secondary school pupils: A preliminary mixed methods study. Educational Psychology, 32(5), 641-655. doi: 10.1080/01443410.2012.675646

Dweck, C. S., & Elliott, E. S. (1983). Achievement motivation. In E. M. Hetherington (Ed.), Socialization, personality, and social development. New York: Wiley.

Dweck, C. S. (1986). Motivational processes affecting learning. American Psychologist, 41, 1040-1048. doi:10.1037/0003066X.41.10.1040

Dweck, C.S. (1999). Self-theories: Their role in motivation, personality, and development. Philadelphia, PA: Psychology Press.

Dweck, C.S. (2006). Mindsets. The psychology of success. New York, NY: Ballantine.

Dweck, C. S. (2007). Boosting achievement with messages that motivate. Education Canada, 47(2), 6-10.

Dweck, C. S. (2010). Even geniuses work hard. Educational Leadership, 68(1), 16-20.

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. doi:10.1016/j.appdev.2003.09.002

Hong, Y. Y., Chiu, C. Y., Dweck, C. S., Lin, D. M., Wan, W. (1999). Implicit theories, attributions, and coping: A meaning system approach. Journal of Personality and Social Psychology. 77, 588-599. doi:10.1037/0022-3514.77.3.588

Martocchio, J. J., (1994). Effects of Conceptions of Ability on Anxiety, Self-Efficacy, and Learning in Training. Journal of Applied Psychology, 79, 819-825.

McGovern, M., & Shelly, S. (2000). The Quotable Athlete. New York, NY: McGraw-Hill.

Moorman, E. A., & Pomerantz, E. M. (2010). Ability mindsets influence the quality of mothers' involvement in children's learning: An experimental investigation. Developmental Psychology, 46(5), 1354-1362. doi: 10.1037/a0020376

Robins, R.W., & Pals, J.L. (2002). Implicit self-theories in the academic domain: Implications for goal orientation, attributions, affect, and self-esteem change. Self and Identity, 1, 313-336. doi:10.1080/15298860290106805

Sternberg, R., (2005). The Handbook of Competence and Motivation. New York, NY: Guilford Press.

Subotnik, R. F., Olszewski-Kubilius, P., & Worrell, F. C. (2011). Rethinking giftedness and gifted education: A proposed direction forward based on psychological science. Psychological Science in the Public Interest, 12(1), 3-54. doi: 10.1177/1529100611418056