Global Educational Studies Review

GESR

Check for updates | Cite Us

Mindset and Achievement: A Secondary School Perspective in Khyber Pakhtunkhwa

Bashir Muhammad	PhD (Scholar), Department of Education, Qurtuba University of Science & Technology Peshawar, KP, Pakistan, Pakistan. Email: bashirmuhammad1686@gmail.com *(Corresponding Author)*
Rahim Khan	Associate Professor, Department of Education, Qurtuba University of Science & Technology Peshawar, KP, Pakistan.
Safiullah	PhD (Scholar), Department of Education, Qurtuba University of Science &Information Technology, Peshawar, KP, Pakistan.

Abstract: *This descriptive research study aimed to determine the impact of students' mindsets on their academic achievement. The population comprised students enrolled at the government secondary school level in the districts Peshawar and Charsadda of Khyber Pakhtunkhwa, Pakistan. A sample of 400 boys and 398 girl students was selected through a Multi-stage random sampling technique. The self-theory version of the implicit theories of intelligence scale developed by De Castella and Byrne (2015) was used for the study. Students' achievement scores were obtained from the annual examination 2021 result of the BISE Peshawar. It was found that Students' fixed mindset had significant and strong negative, while students' growth mindset had a significant and strong positive linear relationship with students' achievement. Both students' fixed and growth mindsets significantly and strongly predicted but students 'fixed mindset negatively, while students' growth mindset positively contributed towards students' achievement. The study also revealed some gender differences.*

Key Words: Mindset, Fixed mindset, Growth mindset, Achievement, Secondary School level

Introduction

This research study was an attempt to explore the impact of students' mindset on academic achievement in the context of Pakistan. Educationists have remained interested in understanding factors related to students and their performance. The present government has shown concern about the quality of education in the country. Teachers and other stakeholders are taking an interest in what causes some students to remain focused on one or another goal while the others diverge to other interests.

Although various research studies have been conducted on the importance of intelligence and cognitive ability on students' achievement, in recent years, psychology has given rise to various non-cognitive skills for understanding and helping people succeed in things they want to achieve (Khan, 2018). Mindset is one of these skills which has gained increased importance in recent years.

The literature has provided some information about the importance of mindset, and the evidence is still emerging in the context of Pakistan. The study has much to offer to this inquiry because of the dearth of research regarding this skill and students' achievement

in the country. It is assumed that understanding the impact of mindset on academic growth and experiences can point out various ways by which teachers can meet the requirements of the learners and fill the gap in achievement.

Although efforts are being made to improve curriculum and instruction at schools, low academic achievement is still reported in the examinations. There are some students that achieve better than others regardless of socioeconomic status, culture, and facilities available at schools. A possible explanation for this phenomenon may be students' mindset. It is asserted that a better understanding of this construct is needed to address the problem.

Mindset is the way of thinking and opinions of individuals and represents the established set of attitudes that individuals possess. The study of students' mindset is important for explaining their academic achievement. Students with a growth mindset show better outcomes like high levels of positive affect, self-esteem, and harmony, while students with a fixed mindset show negative academic emotions like boredom, anger, shame, anxiety, and hopelessness (King, McInerney, & Watkins, 2012).

Students who value effort possess a growth mindset and believe that ability and skills are malleable across a lifetime, while students with a fixed mindset consider intelligence as fixed or stagnant; therefore, they believe that more effort will not make a difference in the outcome (McFarlane, 2018).

Dweck (2006) suggested that a growth mindset which is a belief that incessant learning could occur throughout life is essential for learning. According to Costello (2019), knowledge about mindset might be utilized to improve persistence and motivation. These skills may provide a solution for improving achievement. It is argued that schools can use the concept of mindset to help student modify their behaviour. Knowledge about students' mindsets can support school and students in achieving success.

Objective and Hypothesis

The purpose of this study was to find out the impact of students' mindsets on their academic achievement in a sample of secondary school students in District Peshawar and District Charsadda of the Khyber Pakhtunkhwa of Pakistan. It was hypothesized that;

H_0: There was no impact of students' mindset on their academic achievement.

Review of Literature

This section provides an understanding of mindset and achievement. The review provides a background related to research on mindset and examines the potential relationship between the study variable and academic achievement.

Mindset/Implicit Theories of Intelligence

Implicit theories are a set of beliefs about intelligence that people hold to understand the world around them and are shaped by experiences. This concept has developed into what is referred to as "Mindset." Although these beliefs are not always consciously known hence why they are "implicit" and have widespread implications for student motivation, learning and achievement (Sorensen, 2016).

Dweck (2006) presented two implicit theories of intelligence, namely entity theory and incremental theory. Entity theory, also termed a fixed mindset, regards intelligence as fixed and unchangeable with effort and learning, while the incremental theory of intelligence, also termed growth mindset, regards intelligence as changeable or malleable with effort and learning.

Concept of Fixed Mindset and Growth Mindset

Students having a fixed mindset tend to display ego goals and compete to win orientations. The fixed mindset was related to maladaptive self-handicapping behaviours and avoided seeking help, while students who adopt a growth mindset demonstrate task goals and orientation to excel. A growth mindset looks at challenges

as enjoyment and opportunity in the process of education (Castella & Byrne, 2015).

Students with a fixed mindset are inclined to value looking smart above all other things. They might even sacrifice important learning opportunities if they require a risk of poor performance or admitting gaps in achievement, but students having a growth mindset consider challenging tasks as an opportunity for learning. They have a thirst and excitement to learn and engage in the presented challenge. Instead of thinking about failure, they might consider that mistakes are part of life (Oliver, 2015).

Students having a fixed mindset consider intelligence and ability as unalterable. For such students, success is more than appearing talented or smart and focusing on better performance, while students with a growth mindset believe that ability can be developed through experience, effort, training and motivation to stretch beyond the existing abilities to learn and overcome challenges (Dweck, 2017). A growth mindset is the belief that skills and activities can be developed through hard work and dedication (Einck, 2017, p.2) and shows a belief in one's ability to learn and succeed (Ryan & Beamish, 2017).

Students with a growth mindset assume learning goals in which their abilities are developed for understanding and learning. On the other hand, students with fixed mindset assume performance goals in which they want to show that they are smart than other students (Buzzetto-Hollywood et al., 2019). Students having a fixed mindset might exhibit maladaptive learning behaviour, including shutting down, acting out behaviours, and avoidance behaviours, while a more adaptive learning behaviour is generally presented by students having a growth mindset (Cornell, 2020).

Learners having a fixed mindset refuse inspiration from others. They believe that they possess traits that cannot be changed and that they were destined to have their natural talents, while students with a growth mindset see the benefits of learning from others. If someone else can overcome a challenge, then

they can do it as well. They persistently set challenging goals and strive for success, believing that new skills can be acquired through focus, commitment, effort, and determination (Reid, 2020). It is argued that mindset plays an important role in learning, and the way students and teachers think about learning and intelligence can impact achievement.

Mindset and Achievement

Individuals having a growth mindset concentrate on mastery goals instead of performance goals (Dweck, 2006). Mindset affects how students respond to difficulties and challenges. A growth mindset is related to mastery orientation, wherein students are expected to persevere and adopt strategies that are suitable for setbacks and difficulties, while a fixed mindset negatively affects students' response to setbacks and difficulties (Dweck & Master, 2009). Students who work toward learning develop more as a student and give better performance. Claro, Paunesku and Dweck (2016) established that a growth mindset predicts achievement.

A growth mindset is related to higher academic achievement. Students who persevere during difficult tasks would likely succeed better than those who consider intelligence as a product of natural ability (Zintz, 2018). Students who persevere are more likely to succeed than those who consider intelligence as a mere natural ability. Promoting the growth mindset in students can improve their persistence and performance (Gorson & Rourke, 2019).

According to Helfinstine (2020), students having a growth mindset possess the motivation to learn and never give up, which helps them succeed, while students having a fixed mindset lack resilience and might not succeed very well. "Students with a fixed mindset are at risk of making slower growth than students with a growth mindset" (Becken, 2020, p.16). Anderson (2020) has argued that a growth mindset is, to varying degrees, positively correlated to perseverance and achievement, and growth mindset

interventions can positively impact student mindsets and achievement.

Researches about Mindset and Achievement

Abdullah (2008) reported that students' growth mindset was positively related to intrinsic goal orientation and suggested that students having a growth mindset worked hard because they were certain that their effort would improve their learning. Auten (2013) found that the mindset of students and teachers has a significant role in academic attainment at the college level. Castella and Byrne (2015) reported that a fixed mindset was a predictor of greater helplessness, lower achievement goals, provenance, and poor academic attainment. They indicated that students' belief about intelligence has significant implications for their engagement, motivation, and performance.

Aditomo (2015) has indicated that a growth mindset prompted effort attribution and adoption of mastery goals in students that shielded against demotivation from academic failure and resulted in improved achievement. Claro et al. (2016) reported a growth mindset as a significant predictor of achievement and showed a positive relationship with achievement in different socioeconomic conditions. Hall (2016) revealed a significant negative relationship between growth mindset and achievement score. The growth mindset did not improve with the passage of time during the course.

Seabrook (2017) tested the relationship between students' mindset and GPA but did not find the hypothesized positive relationship between a growth mindset and GPA; however, a relationship between mindset and other variables was found. Keown (2017) reported that students who had a belief that they could develop their intelligence performed better than students who considered intelligence as fixed. Macnamara and Rupani (2017) tested whether women had a higher fixed mindset than men and whether there was a high likelihood that women having higher intelligence held a fixed mindset. They found

no evidence about the matter and the belief that was having a higher level of growth mindset resulted in greater academic persistence.

Khan (2018) reported that a student's level of fixed mindset strongly predicted math grades, and there was a significant inverse correlation between perseverance and achievement in mathematics. It was further reported that students in higher grade levels showed higher levels of a fixed mindset. Degol et al. (2018) found an increased likelihood that students having a growth mindset valued mathematics predicted higher career aspirations. Higher task value was endorsed by having a growth mindset but not by firmer expectancy beliefs. Females were more inclined to a fixed mindset regarding math which led to less interest and lower achievement.

Limeri et al. (2020) corroborated the effect of mindset on performance and suggested that students' performance influenced their mindsets, implying that students' mindset and academic performance formed a positive feedback loop. Su, Wan, He, and Dong (2021) found that boy students had significantly higher levels of growth mindset and math self-efficacy as compared to girl students, but there were no statistically significant differences among them with respect to failure beliefs and math scores. The discussion on mindset and its impact on achievement demonstrates that mindset, along with other variables, influences achievement.

Research Methodology

It was a descriptive research study having a quantitative research method which intended to find out the impact of students' mindset on their academic achievement. The population of the study included students enrolled at the secondary level in Khyber Pakhtunkhwa. Two districts of Khyber Pakhtunkhwa, namely District Peshawar and District Charsadda, were selected as accessible populations for the study. In these two districts, 62727 girl students and 94570 boy students were enrolled in 135 Government Girls and 199 Government Boys 'secondary schools, respectively. Multi-stage

random sampling technique was used, and a sample of 400 boy students and 398 girl students was selected. The self-theory version of the implicit theories of intelligence scale developed by De Castella and Byrne (2015) was for data collection, which utilizes a 6-point Likert scale ranging from 1= strongly disagree to 6=strongly agree. Four items in the inventory measured fixed mindset, whereas the other four items measured growth mindset. The maximum score on this scale is 6, which represents a high fixed or high growth mindset, and the lowest score on this scale was 1, which represented a low fixed or low growth mindset. The scale was translated into the Urdu language, which was given along with the English statements. Students' achievement scores were obtained from the Secondary School Certificate (SSC) Annual Examination 2021 result conducted by the Boards of Intermediate and Secondary Education Peshawar. Data were analyzed through computer programs like Microsoft Excel 2018 and IBM SPSS Statistics version 24.0 for windows.

Analysis and Interpretation of Data

Table 1. Categorization for analysis of study variable

Mindset			
	Fixed mindset Items	1-4	1.0 – 3.0	Low fixed mindset/ High growth-mindset

			1.0 – 3.0	Low fixed mindset/ High growth-mindset
Mindset	Fixed mindset Items	1-4	3.01– 3.99	Medium fixed-mindset/ Medium growth-mindset
			4.0 – 6.0	High fixed mindset/ Low growth-mindset
	Growth mindset Items	5-8	1.0 – 3.0	Low growth mindset/ High fixed-mindset
			3.01– 3.99	Medium growth-mindset/ Medium fixed-mindset

Note: Level of a fixed mindset, growth mindset as used in the study.

Table 2. Analysis of independent variables showing majority responses and their significance, N=780

			f	%	M	SD	One sample t-test statistics Mid-point= 3.5 (for mindset)			
		Level					t	df	M. Diff.	Sig.
Students' mindset	Fixed mindset	Low	536	68.7						
		Medium	4	0.5						
		High	240	30.8	2.76	1.41	-14.532	779	-0.74	.000
		Total	780	100						
	Growth mindset	Low	229	29.4						
		Medium	10	1.3						
		High	541	69.4	4.10	1.46	11.519	779	0.60	.000
		Total	780	100						

Sig. =.000<.05

Table 2 reveals that; the mean value of fixed mindset was 2.76, which was less than the midpoint of 3.5, having a statistically significant mean difference of -0.74(t=-14.532, Sig. =000). It showed that majority of the students 'had a low level of fixed mindset (f=536, 68.7%).

The mean value of the growth mindset was 4.10, which was higher than the midpoint of 3.5, having a statistically significant mean difference of 0.60(t=-11.519, Sig. =000). It expressed that the majority of students had a high level of growth Mindset (f=541, 69.4%).

Table 3. Comparison of independent variables across gender, N=780

| | | | Descriptive statistics | | | | | | | | Independent sample t-test Statistics | | | |
| | | | Boy (f$_M$=397) | | | | Girl (f$_F$=383) | | | | | | | |
		Level	f	%	M	SD	f	%	M	SD	t	df	M. Diff.	Sig.
Students' mindset	Fixed mindset	Low	247	62.3			289	75.5						
		Medium	3	0.7			1	0.25						
		High	147	37	2.86	1.49	93	24.3	2.66	1.32	1.994	778	0.20	.047
		Total	397	100			383	100						
	Growth mindset	Low	142	35.8			87	22.7						
		Medium	8	2.0			2	0.5						
		High	247	62.2	3.83	1.56	294	76.8	4.38	1.30	-5.397	778	-0.55	.000
		Total	397	100			383	100						

Sig. =.000<.05

Table 3 shows that

1. The mean difference (0.20) of boy students' responses (M=2.86) and girl students 'responses (M=2.66) for fixed mindset was statistically significant (t=1.994, Sig. =.047). It indicated that the fixed mindset of boy students was different from girl students, and a relatively large number of boy students

had a high level of fixed mindset (f=147, 37%) as compared to girl students (f=93, 24.3%).

2. Similarly, the mean difference (-0.55) of boy students' responses (M=3.83) and girl students' responses (M=4.38) for growth mindset was statistically significant (t=-5.397, Sig.=.000). It indicated that the growth mindset of boy students was different from girl

students, and a relatively large number of girl students had a high level of growth mindset (f=294, 76.8%) as compared to boy students (f=247, 62.2%).

Testing of Hypothesis

H_0: There was no impact of students' mindset on students' academic achievement.

Table 4. The linear relationship between students' mindset (Fixed mindset, Growth mindset) and students' academic score using Pearson correlation coefficient, N=780

	Academic Score	Sig.
Students' Mindset	1. Students' Fixed Mindset	-.754
	2. Students' Growth Mindset	.705

Sig. =.000<.05

Table 4 shows that;
1. There was a strong negative and statistically significant linear relationship between a fixed mindset and academic score (r=-.754, Sig.=.000).
2. There was a strong positive and statistically significant linear relationship between growth mindset and students' academic scores (r=.705, Sig.=.000).

Table 5. The linear relationship between students' mindset (Fixed mindset, Growth mindset) and students' academic score using linear regression, N=780

Model	R Square	F	Beta	t	Sig.
1 (Students' fixed mindset)	.568[a1]	1024.297	-.754	-32.005	.000
2 (Students' growth mindset)	.497[a2]	769.091	.705	27.732	.000

Sig. =.000<.05

Table 5 shows that linear regression model 1 was statistically significantly (F (1, 778) =1024.297, Sig.=.000) and moderately fitted to the observed data (R^2=0.568), meaning that the students' fixed mindset explained 56.8% statistically significant variation in the students' academic Score. Linear regression model 2 was statistically significantly (F (1, 778) =769.091, Sig.=.000) and moderately fitted to the observed data (R^2=.497), meaning that the students' growth mindset explained 49.7% variation in the students' academic scores.

Table 5 also shows that students' fixed mindset statistically significantly, strongly predicted and positively contributed to the students' academic score (Beta=-.754, t=-32.005, Sig.=.000). Students' growth mindset statistically significantly, strongly predicted and positively contributed to the students'

academic score (Beta=.705, t=27.732, Sig.=.000)

Therefore, on the basis of Pearson correlation and linear regression, the null hypothesis was rejected, and it was accepted that students' mindset had a strong impact on their academic achievement.

Results and Recommendations

1. Majority of the students had low level of fixed mindset (f=536, 68.7%) and high level of growth Mindset (f=541, 69.4%). Boy students had high level of fixed mindset (f=147, 37%) than girl students (f=93, 24.3%), while girl students had high level of growth mindset (f=294, 76.8%) than boy students (f=247, 62.2%).
2. Students' fixed mindset had a significant and strong negative linear relationship with students' academic

achievement (r=-.754, Sig. =.000), while students' growth mindset had a significant and strong positive linear relationship with students' achievement (r=.705, Sig. =.000).

3. The students' fixed mindset significantly, strongly predicted and negatively contributed to students' academic achievement (Beta=-.754, t=-32.005, Sig=.000)., while students' growth mindset significantly, strongly predicted and positively contributed to students' achievement (Beta=.705, t=27.732, Sig=.000). It was concluded that fixed mindset of students had a strong negative impact on their academic achievement, while growth mindset of students had a strong positive impact on their achievement.

Efforts may be made to develop a growth mindset in boy students, while girl students need to be further encouraged to improve on their growth mindset to enhance achievement. This can be achieved by making students believe that they personally much to increase their intelligence with enough time and effort.

Discussion

The study found that majority of the students had a high level of fixed and growth mindset with significant gender differences. It added to Khan (2018), who reported that the higher the grade level, the greater the students' level of a fixed mindset. The finding of the study that boy students had a high level of a fixed mindset than girl students, while girl students had a high level of growth mindset than boy students is in line with Ryan and Beamish (2017), who reported that girls exhibited a high level of growth mindset than boys but is in contrast with the finding of Degol et al. (2018) who found that females were more inclined to fixed mindset and had lower achievement than male. This result may not be surprising as, according to Ryan and Beamish (2017), girls generally become emotional mature earlier than boys, which might be a catalyst for a growth mindset and self-regulation.

The study found that students' growth mindset had a significant and strong positive linear relationship with students' achievement. The finding is in line with Degol et al. (2018), who reported that students were more inclined to have a fixed mindset which led to less interest in a career and lower achievement. The finding is also consistent with Claro et al. (2016), who reported that a growth mindset is a comparably strong predictor of achievement and showed a positive relationship with achievement across the socioeconomic condition. The finding is in contrast with Hall (2016) and Seabrook (2017), who did not find the hypothesized positive relationship between a growth mindset and GPA. The finding is also in contrast with Khan (2018), who reported that a student's level of fixed mindset is a strong predictor of math grades with a significant inverse relationship between perseverance and math grades. A reason behind it might be that Khan (2018) had conducted his study in the specific subject of Math, while the present study provides a generalized view of the achievement in all subjects. If the present study is conducted in relation to one specific subject like math, English, or chemistry, then the results might be different.

It is argued that teachers need to provide opportunities for students to develop a growth mindset. Teachers should re-evaluate their concept of failure and see the education process as a journey through which students can progress. They should value the process of learning and not just the product of learning or achievement. Teachers should think of ways that the growth mindset could be embedded within the instruction and the overall classroom environment.

Implications of the Study

This study makes some theoretical and empirical contributions to the present literature on mindset in relation to student achievement. The study was based on the social cognitive theory as propounded by Bandura (1986) and mindset theory as presented by Dweck (2006). The study implies that the theories are suitable for explaining and understanding the mindset

of the target population. The study may serve as a basis for future investigation regarding gender differences in the studied population for further exploration of the factors that cause these differences.

The positive correlation of students' mindset with students' achievement and understanding of this personality trait increases the chances of students' success at the secondary school level. It is pertinent for schools to equip students with the skills for academic achievement and for living in a rapidly changing and complex world. Research indicated that teachers play a key role in developing students' mindsets through the use of proper wording, focusing on effort, and persistence in teaching about a growth mindset is important for success. They, thus, instil the idea in students that they can achieve much better if they set their minds to it (Schoaf, 2017).

Teachers should consider that many teaching strategies foster a growth mindset. These include direct intervention programs to make students understand how their intelligence and skills can be improved through effort. Teachers should equip students with a sense of purpose and motivation for learning. Dweck and Yeager (2019) proposed that

infusing a classroom environment with the instructional tasks and practices that foster a growth mindset may be the most effective kind of intervention. As schools aim to create safe and supportive learning environments for early adolescents, understanding the impact of the teacher is the key and requires further study. Focus on the context of the classroom through an emphasis on instructional practices and the messages students receive will extend the understanding of how to build learning communities that use teachable moments to instil a growth mindset and promote a focus on learning.

Future Directions

Future research can examine how academic achievement and mindset are shaped by family, schools, and society throwing light on the ways and the extent to which different institutions influence mindset and achievement. A comprehensive intervention approach across the schools is required for further study by using qualitative research methods like interviews, focused group discussions or observation checklists to further explore these findings. Future studies may investigate these variables in graduate or post-graduate institutions.

References

Abdullah, M. Y. (2008). Children's Implicit Theories of Intelligence: Its Relationships with Self-Efficacy, Goal Orientations, and Self-Regulated Learning. *International Journal of Learning*, *15*(2), 47-56. Retrieved from https://cgscholar.com/bookstore/works/childrens-implicit-theories-of-intelligence

Aditomo, A. (2015). Students' Response to Academic Setback: "Growth Mindset" as a Buffer against Demotivation. *International Journal of Educational Psychology*, *4*(2), 198-222. Doi:10.17583/ijep.2015.1482

Anderson, E. (2020). *Utilizing the Growth Mindset to Boost Perseverance and Academic Achievement* (Master Thesis, Concordia University, St. Paul, US). Retrieved from https://digitalcommons.csp.edu/teacher-education_masters/19

Auten, M. A. (2013). *Helping Educators Foster a Growth Mindset in Community College Classrooms* (Ph.D. dissertation, College of Education, Walden University, Minnesota, US). Retrieved from https://media.proquest.com/media/hms/ORIG/2/2JTBK?_s=aIaxmoAka7sn2CyOPD2ABRSvmuQ%3D

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, New Jersey, US: Prentice Hall.

Becken, D. (2020). *Effects of Growth Mindset on a Student's Educational Experience* (Master Thesis, Concordia University, Saint Paul, Minnesota, US). Retrieved from https://digitalcommons.csp.edu/cgi/viewcontent.cgi?article=1026&context=teacher-education_masters#:~:text=Research%20confirmed%20that%20students%20who,%2C%202007%3B%20DeBacker%20et%20al

Buzzetto-Hollywood, N., Mitchell, B. C., & Hill, A. J. (2019). Introducing a Mindset Intervention to Improve Student Success. *Interdisciplinary Journal of e-Skills and Lifelong Learning, 15,* 135-155. Retrieved from https://doi.org/10.28945/4465

Castella, K. D., & Byrne, D. (2015). My Intelligence may be more Malleable than Yours: The Revised Implicit Theories of Intelligence (Self-Theory) Scale is a Better Predictor of Achievement, Motivation, and Student Disengagement. *European Journal of Psychology*, *30*, 245-267. Retrieved from https://www.semanticscholar.org/paper/My-intelligence-may-be-more-malleable-

Claro, S., Paunesku, D., & Dweck, C. (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. Doi.org/10.1073/pnas.1608207113

Cornell, B. L. (2020). *An Instrumental Case Study: Growth Mindset Instructional Best Practices for Learning Disabled Students* (Ph.D. Dissertation, School of Educational Leadership, Abilene Christian University, Texas, US). https://digitalcommons.acu.edu/cgi/viewcontent.cgi?article=1227&context=etd

Costello, J. (2019). *Relationship Between Non-Cognitive Skills and Mathematics Achievement*. (Ph.D. dissertation, College of Education, Walden University, Minnesota, US). Retrieved from https://scholarworks.waldenu.edu/dissertations/6781/

Degol, J. L., Wang, M. T., Zhang, Y., & Allerton, J. (2017). Do Growth Mindsets in Math Benefit Females? Identifying Pathways between Gender, Mindset, and Motivation. *Journal of Youth and Adolescence*, *47*(5), 976–990. https://doi.org/10.1007/s10964-017-0739-8

Dweck, C. S. (2006). *Mindset: The New Psychology of Success*. New York: Random House.

Dweck, C. S. (2017). *Mindset Changing the Way You Think to Fulfil Your Potential*.

London, England: Little Brown Book Group.

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit Theories and Their Role in Judgments and Reactions: A World from Two Perspectives. *Psychological Inquiry*, *6*(4), 267-285. Retrieved from https://hub.hku.hk/bitstream/10722/44536/1/11302.pdf?accept=1

Dweck, C. S., & Yeager, D. S. (2019). Mindsets: A View From Two Eras. *Perspectives on Psychological Science*, *14*(3), 481–496. https://doi.org/10.1177/1745691618804166

Einck, C. (2017). *Growth Mindset Affects Elementary Students* (Master Thesis, Northwestern College, Orange City, Lowa, US). http://nwcommons.nwciowa.edu/education_masters/39/

Hall, C. D. (2016). *Interteaching and Mindset* (Bachelor Thesis, James Madison University, Virginia, US). https://commons.lib.jmu.edu/cgi/viewcontent.cgi?article=1228&context=honors201019

Helfinstine, K. (2020). *Growth Mindset Language and Literacy in the Kindergarten Classroom.* (Master thesis, Hamline University, Saint Paul, Minnesota, US). https://digitalcommons.hamline.edu/hse_all/4483

Keesey, S., Schaefer, A., Loy, M., & Allen, C. J. (2018). Developing Growth Mindset and Grit in Preservice Teachers. *Kentucky Teacher Education Journal*, *5*(1), 3. https://digitalcommons.murraystate.edu/ktej/vol5/iss1/3

Keown, S. R. (2017). A Qualitative Investigation of Fixed Versus Growth Mindsets of Third and Fourth Grade Students (Ph.D. Thesis, Murray State University, Kentucky, US). https://digitalcommons.murraystate.edu/etd/66

Khan, N. (2018). *The Impact of Mindset and Grit on Academic Success in Math and Science* (Ph.D. Dissertation, Hofstra University, Hempstead, New York).

https://www.proquest.com/openview/67de07ef267aefbc33f2e1d1d98291d6/1?pq-origsite=gscholar&cbl=18750

King, R. R., McInerney, D. M., & Watkins, D. A. (2012). How You Think About Your Intelligence Determines How You Feel in School: The Role of Theories of Intelligence on Academic Emotions. *Learning & Individual Differences*, *22*(6), 814-819. https://psycnet.apa.org/record/2012-14077-001

Limeri, L.B., Carter, N.T., Choe, J., Harper, H. G, Martin, H.R., Benton, A., & Dolan, E. L. (2020). Growing a Growth Mindset: Characterizing how and why Undergraduate Students' Mindsets Change. *International Journal of STEM Education*, *35*(7),1-19. https://stemeducationjournal.springeropen.com/articles/10.1186/s40594-020-00227-2

Macnamara, B. N., & Rupani, N. S. (2017*).* The Relationship Between Intelligence and Mindset. *Elsevier Inc. Intelligence*, *64*, 52–59. doi.org/10.1016/j.intell.2017.07.003

McFarlane, S. L. (2018). *Assessing The Relationship of Grit and Student Achievement in Reading and Mathematics in Second Grade Students of the Sault Ste. Marie Public School District* (Doctoral Dissertations, Eastern Michigan University, US). Retrieved from https://commons.emich.edu/cgi/viewcontent.cgi?article=2314&context=theses

Oliver, B. (2015). What's Your Mindset? *Indiana gram: Indiana Association of School Principals Newsletter*, *17*(7), 1-2. https://digitalcommons.butler.edu/cgi/viewcontent.cgi?article=1157&context=coe_papers

Reid, J. M. (2020). *Growth Mindset: A Key to Motivating Students in Reading* (Master Thesis, Eastern Illinois University, US). Retrieved from https://thekeep.eiu.edu/theses/4782

Rutherford, K. J. (2019). *Exploration of Growth Mindset Application in Communication Sciences and Disorders*

(Doctoral Dissertation, the Graduate College of Marshall University, Virginia, US). https://mds.marshall.edu/etd/1185

Ryan, A., & Beamish, P. (2017). Mindset, Perseverance and Learning. *TEACH Journal of Christian Education¸ 12*(2), 43-50. https://research.avondale.edu.au/teach/vol12/iss2/8/

Schoaf, M. (2017). *Impact of Mindset Interventions During Morning Meeting On Student Motivation and Classroom Community* (Master Thesis, Hamline University, Saint Paul, Minnesota, US). https://digitalcommons.hamline.edu/hse_all/4260

Seabrook, A. L. (2017). *Fixed and Growth Mindset in Undergraduate Students: Impacts on Academic Achievement and Resilient Behaviors* (Honors Thesis, University of Mississippi, US).

Sorensen, C. E. (2016). *The Relationship of Growth Mindset and Goal Setting in a first-year College Course* (Ph.D. Dissertation, Open Public Research Access International Repository and Information Exchange¸ South Dakota State University, US). https://openprairie.sdstate.edu/cgi/viewcontent.cgi?article=1686&context=etd

Su, A., Wan, S., He, W., & Dong, L. (2021). Effect of Intelligence Mindsets on Math Achievement for Chinese Primary School Students: Math Self-Efficacy and Failure Beliefs as Mediators. *Frontiers in Psychology, 12.* https://doi.org/10.3389/fpsyg.2021.640349