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Mindset And Passion in Student Achievement

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Abstract

The mindset of students when they study is vital. It can affect the types of objectives they set and how they link success to the struggles they have experienced. Another factor affecting achievement is passion. It is essential to attain good autonomy, relatedness, and competence. This study aims to determine the correlation between mindset and passion in student achievement. This study used a quantitative approach with correlational research methods. Participants in this study were 334 students between the age of 18 and 25 who are currently enrolled at university in Java. According to the results of the Spearman's correlation test, there was no correlation between fixed mindset and passion (r= -0,031, p= 0,578), and there was a positive correlation between growth mindset and passion (r= 0,299, p= 0,00). These findings suggest that students who prefer to adopt a growth mindset also have a high passion for achievement. In addition, there is a significant difference in the growth mindset variable based on the branches of science. The findings highlight the significance of cultivating a growth mindset in student achievement.

Keywords: Mindset, growth mindset, fixed mindset, passion

Introduction

Education is a fundamental right for all Indonesian people, as outlined in Article 31 paragraph (1) of the 1945 Constitution, which states, "Every citizen has the right to education" (Nadziroh et al., 2018). Education is crucial for one's life. Besides increasing knowledge, through education, individuals can develop critical thinking, build character, maximize self-potential, and find and learn about their unique interests. According to the Kamus Besar Bahasa Indonesia, education, derived from the term "educate," is "the act of altering the mindsets and behaviors of an individual or group, to mature them through teaching and training." Education itself can be obtained informally and formally. Informal education is education given in a family environment, while formal education has a structure and level (Sulfasyah & Arifin, 2016). Formal education in Indonesia consists of four levels: preschool, elementary school (Sekolah Dasar/SD), secondary school (consisting of junior high school (Sekolah Menengah Pertama/SMP) and high school (Sekolah Menengah Akhir/SMA) and higher education institutions (Bafadhol, 2017). By completing formal education to a higher education level, students can broaden and deepen their knowledge of certain subjects and gain a better understanding of the professional world due to the demands of more specific knowledge and skills.

Higher education is an educational institution that arranges undergraduate and graduate programs directed at the mastery and development of Science and Technology (Handini et al., 2020). Higher education is considered the center of scholars; apart from being a place for increasing knowledge, they are also supposed to generate the nation's scientists (Murhadi, 2000). Higher education can be a source of intellectual discovery and personal development, particularly in verbal and quantitative skills, moral reasoning, and critical thinking (Montgomery & Côté, 2003, as cited in Papalia et al., 2009). Individuals who pursue higher education are generally in the period of emerging adulthood (Hayani & Wulandari, 2017; Papalia et al., 2009). The level of education achieved by individuals in emerging adulthood also plays a role in influencing

how likely they are to maximize their cognitive potential (Labouvie-Vief, as cited in Santrock, 2016).

To maximize their cognitive abilities, students need a lot of time in their learning and training to excel in their desired field (Sigmundsson et al., 2020b). When this learning activity is internalized, highly valued, loved, practiced regularly, and has become a core part of an individual's identity, it has become a passion (Bonneville-Roussy et al., 2011). By having a passion, students can get some positive results in their lives, including that passion plays an important role in achieving the highest level of achievement (Vallerand & Verner-Filion, 2013). Apart from being a determinant of motivation for achievement, passion can be regarded as a determinant of intention to remain at the chosen university (Simamora, 2021). According to 2020 statistics for higher education in Indonesia, 602,208 students will have dropped out of school, either by being expelled, quitting, or resigning (Handini et al., 2020). For students to change their abilities, skills, and values in higher education and contribute to a greater degree of institutional dedication, it is essential to have a passion (Hennig-Thurau et al., 2001, as cited in Simamora, 2021).

Passion is a strong feeling towards a particular preference, object, activity, or concept considered important by the individual and motivates the individual's intentions and actions to express that preference (Jachimowicz et al., 2018). Individuals who are passionate about the activities they do, in this case pursuing an education, will achieve success by showing higher levels of cognitive flexibility, proactiveness, self-efficacy, and learning engagement which can also be predicted by the student's mindset (Jachimowicz et al., 2019; Zeng et al., 2016).

A student's mindset can significantly influence student engagement and success. Therefore, many colleges are involved in establishing the right mindset in the learning process (Center for Community College Student Engagement [CCCSE], 2019). Mindset is an individual's belief about personal qualities, such as intelligence or personality (Dweck, 2012). Dweck (as cited in King, 2019) utilizes the term mindset to describe how our beliefs about self-quality can determine our goals, what we think can be learned, and what we know. Students' mindset is essential because it can impact other non-cognitive elements, such as the type of goals they set, how to associate success with the hardships they have experienced, and how to deal with the challenges they face (Limeri et al., 2020). In line with the prior statement, Glerum et al. (2020) stated that a student's mindset can also influence how they approach new challenging assignments and determine the efforts they choose to exert.

There are two types of mindsets, namely, a fixed mindset and a growth mindset. The fixed mindset is that individuals believe their qualities cannot be changed, whereas individuals with a growth mindset believe their qualities can be altered and enhanced through effort (Dweck, 2017, as cited in King, 2019). According to Limeri et al. (2020), most students possess a growth mindset, which may be developed and altered over time. By maintaining a growth mindset, students can adapt their learning objectives and respond to challenges by focusing on comprehension. Additionally, a growth mindset can lead students to better achievement and success (Glerum et al., 2020). Dweck (as cited in King, 2019) reported in a study of first-year medical students that students with a growth mindset performed better than students with a fixed mindset.

Furthermore, Sigmundsson et al. (2020a) propose that passion and mindset play a significant role in developing individual skills and knowledge. Sigmundsson et al. (2020a) found a significant positive relationship between mindset and passion in their research on exploring the relationship between passion, grit, and mindset in students in Iceland. This study also performed a regression analysis, which showed that women with higher passion also had a higher mindset (Sigmundsson et al., 2020a).

Sigmundsson (2021) did a similar study on participants aged 14 to 77 in Norway. Overall, the

results indicated a strong positive correlation between passion and mindset; however, a significant positive relationship between passion and mindset was identified only in the 14–19 and 20–36 age groups. Shamshirian et al. (2021) also researched passion, grit, and mindset by comparing Iranian wrestlers and university students. The results revealed a positive correlation between passion and mindset among Iranian wrestlers and a significantly positive correlation between passion and mindset among Iranian students.

On the other hand, the study on passion, grit, and mindset among Norwegian soccer players yielded different results (Sigmundsson et al., 2020). The results indicated that there is no correlation between passion and mindset. Similar results were also found in a similar study by Frontini et al. (2021) in students majoring in sports science in Portugal; there was a positive but small correlation value between mindset and passion, and no significant difference was found between men and women.

The previous studies (Frontini et al., 2021; Shamshirian et al., 2021; Sigmundsson et al., 2020) only focused on one discipline area, namely sports, that is regarded to require a mindset and passion for excelling or becoming an expert. Having persistence that is supported by factors such as grit, passion, and a growth mindset is necessary to become proficient in any field, including practical skills, athletic skills, and the field of science (Thelen & Smith as cited in Sigmundsson et al., 2020a).

This study investigates the relationship between the two types of mindset and passion in students. The researchers want to reexamine these variables on different research subjects, considering the importance of mindset and passion in developing individual talents, knowledge, and gaps in prior research. The findings of this study are expected to bring new insights and contribute to the field of psychology, particularly positive psychology and educational psychology. In addition, this research will likely serve as a reference for future studies on mindset and passion, particularly in education.

Method

Participants in this study were 334 undergraduate students aged 18-25 years, divided into 12 branches of science and currently studying at both public and private universities in five provinces of Java, including Jakarta, West Java, Central Java, Yogyakarta, and East Java. Overall the participants in this study had a mean age of 20.90 (SD= 1,427). The mean age of male participants (n= 107) was 21.18 (SD= 1.577) and the average age of female participants (n= 227) was 20.77 (SD= 1.335).

This study uses two measuring tools, namely the Norwegian version of the Implicit Theories of Intelligence Scale (ITIS) to measure the participants' mindset and the Passion scale to measure the participants' level of passion. Both measuring instruments have been adapted into Indonesian and have been through expert judgment by three qualified lecturers in the field of psychology. The Norwegian version of the Implicit Theories of Intelligence Scale (ITIS; Bråten & Strømsø as cited in Shamshirian et al., 2021) from ITIS developed by Dweck (2000). It was used to assess the conception of intelligence possessed by individuals as an entity (fixed mindset) and incremental (growth mindset). The entity subscale is when individuals describe their intelligence as an entity that is fixed in themselves and cannot be changed. A high score on this subscale indicates that participants tend to adopt a fixed mindset. This subscale has four positive items and a 6-point Likert scale ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). The internal consistency reliability test indicated that three of the four items measuring the entity subscale had good reliability (Cronbach's α= 0.83). The incremental subscale is when individuals describe their intelligence as something that can be enhanced through effort. A high score on this subscale shows that respondents are likely to adopt a growth mindset. This subscale has four positive items and a 6-point Likert scale ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). The internal consistency reliability test findings indicated that three of the four items assessing the

incremental subscale had good reliability (Cronbach's α= 0.89).

The Passion Scale measuring tool developed by Sigmundsson et al. (2020b) is used to quantify a person's passion for achievement or competence in an area, theme, or skill. Additionally, the Passion Scale examines mental and psychological variables such as a positive attitude, intrinsic motivation, and positive self-perception (Sigmundsson et al., 2020b). Moreover, the Passion Scale can determine an individual's level of passion based on involvement, dedication, and effort (Sigmundsson et al., 2020b). This scale employs a 5-point Likert scale, with a maximum of 5 (very passionate) and a minimum of 1 (not at all passionate). This scale consists of eight positive statements and is unidimensional. The internal consistency reliability test findings indicated that the Passion Scale had good reliability (Cronbach's α= 0.877).

In conducting the research, questionnaires were distributed twice. The distribution of the first questionnaire was intended for a readability test to check the clarity of the measuring instruments. After the readability test, researchers began collecting data online by distributing questionnaire links to social media platforms such as Line, Twitter, Instagram, Telegram, and WhatsApp. Before filling out the questionnaire, participants were required to read a summary of the research at the beginning of the Google Form. Participants can indicate "Yes, I am willing" in the informed consent section once they have understood and consented to their involvement in the study. In addition, participants were required to provide personal information such as name/initials, age, gender, university name and location, study program undertaken, and class. The following questionnaire consists of statement items for the two research variables Data collection was carried out from February 24, 2022, to March 22, 2022.

The data that has been collected is processed and analyzed using IBM SPSS software version 22.0. This study used several data analysis techniques. The first analysis technique is the internal consistency reliability test and normality test on each variable. The following analysis is to test the hypothesis using Spearman's correlation between the passion variable and the mindset variable, which consists of a fixed mindset and a growth mindset. In addition, the researchers used the Mann-Whitney U to compare the gender differences of the three variables and the Kruskal Wallis H to compare the differences among branches of science.

Results

Participants in this study were 334 students, with the highest number of participants in the female gender category (n = 227, 68%). Furthermore, the researchers also divided the study programs undertaken by the participants into 12 branches of science, namely Linguistics (LING), Economics (ECON), Medical Sciences (MED), Health Sciences (HSc), Education Sciences (EDU), Arts, Design, and Media (ADM), Social Sciences, Politics, and Humanities (SPH), Plant Sciences (PSc), Engineering Sciences (ENGSc), Mathematics and Natural Sciences (MNSc), Religion and Philosophy (RPh), and Animal Sciences (ASc). Based on the categories above, the highest number of participants were in the MEDSc (n = 117, 35%) and the lowest number were in the RPh (n = 1.0, 0.3%) and ASc (n = 1, 0.3%).

Based on the data obtained, categorization of research data is carried out to get a more detailed picture of the number of participants with a high, medium, or low tendency on the given scale (see table 1).

Table 1. The frequency of mindset and passion categories

Categories	*Fixed Mindset*		*Growth Mindset*		*Passion*	
	n	**%**	**n**	**%**	**n**	**%**
Low	79	23.7	36	10.8	0	0

Table 1. The frequency of mindset and passion categories

Categories	*Fixed Mindset*		*Growth Mindset*		*Passion*	
	n	%	n	%	n	%
Medium	155	46.4	133	39.8	51	15.3
High	100	29.9	165	49.4	283	84.7
Total	334	100	334	100	334	100

A normality test with a One-Sample Kolmogorov-Smirnov Test was conducted to determine the correlation technique. Based on the normality test results on the mindset and passion variables, the data in this study were nonparametric ($p< 0.05$), so the hypothesis testing was then carried out using the Spearman's rho correlation technique. The results of the correlation test showed that there was no correlation between the variable fixed mindset and passion ($p> 0.05$, $r= -0.031$), and there was a positive and significant correlation between the variable growth mindset and passion ($p< 0.01$, $r= 0.299$). The Mann-Whitney U was used to compare the mindset and passion variables based on gender. The results showed that there was no difference ($p> 0.05$) between male and female students in the three variables (table 2).

Table 2. Mean scores and results of the Mann-Whitney U test based on gender

Variable	Category as whole (n = 334)	Male (n = 107)	Female (n = 227)	*p*
	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)	
Fixed Mindset	3.60 (1.060)	3.70 (0.984)	3.56 (1.093)	0.236
Growth Mindset	4.16 (1.057)	4.13 (1.036)	4.17 (1.069)	0.636
Passion	4.26 (0.546)	4.20 (0.584)	4.29 (0.526)	0.262

Note. p: the significance value of the Mann-Whitney U test

Furthermore, the Kruskal-Wallis H was carried out to compare the mindset and passion variables based on the 12 branches of science. The results of the analysis showed that there was no difference between branches of science in the fixed mindset variable ($p= 0.970$) and passion ($p = 0.105$). On the other hand, there was a significant difference in growth mindset among branches of science ($H= 19,989$, $p <0.05$). Thus, the branches of science had a significant effect on the growth mindset (table 3).

Table 3. The results of the Kruskal-Wallis H test on the growth mindset based on the knowledge group

Variable	*Kruskal-Wallis H*		*p.*
	Branches of science	*Mean rank*	
Growth Mindset			0.045
	LING	146.38	
	ECON	194.11	
	MED	282.83	
	HSc	160.41	
	EDU	156.77	
	ADM	172.29	
	SPH	176.21	
	PSc	95.56	

Table 3. The results of the Kruskal-Wallis H test on the growth mindset based on the knowledge group

Variable	*Kruskal-Wallis H*		*p.*
	Branches of science	***Mean rank***	
	ENGSc	170.72	
	MNSc	131.11	
	RPh	11.00	
	ASc	138.00	

Note. p: the significance value of the *Kruskal-Wallis H test*

Discussion

This study was conducted to determine whether there is a relationship between mindset and passion in student achievement. The primary analysis results indicated that the growth mindset is positively and significantly related to a passion for student achievement. This study's results align with the research conducted by Sigmundsson et al. (2020a), which states that the higher the mindset, which indicates a tendency to the growth mindset, the higher the level of passion possessed by individuals. Thus, the findings of this study suggest that students who have a propensity to adopt a growth mindset have a high level of passion, such as involvement, commitment, and efforts to achieve. The growth mindset fosters a desire to learn. Hence, individuals are more likely to accept challenges, persist in the face of adversity, and view effort as a path to mastery (Dweck, 2006). In line with this, Yeager and Dweck (2012) indicate that students with a growth mindset show higher achievement across difficult school transitions and have a higher completion rate in challenging math courses.

Individuals with a growth mindset believe anyone can significantly improve their intelligence through effort, practice, and education (Sigmundsson et al., 2020). In this instance, passion is one of the reasons why individuals invest much time, effort, and hard work to excel in an area, theme, or skill (Sigmundssonet al., 2020b). Individuals who are passionate about their activities will accomplish success by showing higher levels of engagement, proactivity, cognitive flexibility, and self-efficacy (Jachimowicz et al., 2019). A growth mindset and passion are associated with the extent to which individuals can develop mastery-oriented strategies (Brunette et al., 2013, as cited in Santrock, 2016; Vallerand, 2015). The results of the correlation test also found that there was no correlation between fixed mindset and passion.

The results of this study also indicated that the participants possessed a high level of passion, as none fell into the low category (see Table 1). Passion also plays a role in helping in the pursuit of long-term goals. During college, individuals typically seek a variety of personal objectives, such as achieving good grades or forming new relationships relevant to their passion (Verner-Filion et al., 2020). In college, students have more opportunities to explore different lifestyles and values and are more intellectually challenged academically (Santrock, 2016).

The results of the Mann-Whitney U test showed that there is no difference between gender with both types of mindset and passion. The Kruskal Wallis H test results showed a significant difference between the growth mindset based on the branches of science, and medical science had the highest mean rank value. In medical education, the growth mindset is the key to two fundamental constructs: mastery of learning and highly structured practice to improve performance. In addition, all medical students, residents, and practicing physicians must continue to learn and develop (Richardson et al., 2021). However, the research sample in the medical science family is minimal regarding representativeness. Thus, further research can increase the number of samples or focus on medical science students to better understand.

This study has several limitations, including a limited literature review discussing the relationship between mindset and passion, particularly in Indonesia. In addition, this study's sample was predominantly

composed of female students. Hence the results tended to be less representative of male students. This research also only involves students who study in Java, most of which are located in big cities. Therefore it cannot be applied to all Indonesian students. The participants of this study were involved in a very diverse field of study/ group of knowledge. To acquire a greater understanding of the relationship between mindset and passion among students in a particular field of study, future research can take samples in a specific field of study.

The results of this study further contribute to understanding the relationship between mindset and passion in student achievement in general. Therefore, further studies can add types of student achievements, both in the academic field, such as participants' Grade Point Average (GPA), and in non-academic fields, such as achievements in scientific work competitions, sports, and the arts. Further research can also employ a larger sample to enhance further and expand its findings' generalizability.

Conclusions

According to the findings of a correlation study including 334 students in Java, there was no correlation between the fixed mindset and passion in student achievement. On the other hand, a significant and positive correlation between a growth mindset and passion for student achievement was found in this study. It shows that if students tend to adopt a growth mindset, they also have a high level of passion for achievement. In addition, there are significant differences in the growth mindset based on branches of science. Thus, the branches of science significantly impact the likelihood of adopting a growth mindset.

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