

The Influence of Self-Efficacy and Academic Motivation on Student Engagement Through Learning Agility in Students of SMK X In Jakarta

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ABSTRACT

In the 21st-century learning requires students to be actively engaged in understanding materials, thinking critically, collaborating, being creative, and communicating effectively. However, student participation in Indonesia remains a challenge, as reflected in the low ranking in PISA 2022. This study analyzes the influence of Self-Efficacy and Academic Motivation on Student Engagement through Learning Agility. The research method used is quantitative, employing Structural Equation Modeling (SEM) with SmartPLS v4. The study sample consisted of 155 respondents selected using probability sampling techniques. The findings indicate that Self-Efficacy and Academic Motivation significantly affect Student Engagement through Learning Agility. The R-square value for variable Y is 75.8%, while for variable Z, it is 79%. Therefore, interactive learning with a gradual strategy focusing on long-term benefits is necessary. With the right approach, student engagement, confidence, and motivation can be enhanced to support a more effective learning process.

INTRODUCTION

The need for education in the 21st century is to form and prepare components in education to be able to face the demands of an increasingly developing era. Along with the development of the era, not only technology needs to be improved, but also the improvement of the quality of education must be aligned. The quality of education in Indonesia is still relatively low and requires special attention. Reported based on the article [cnbcindonesia.com](https://www.cnbcindonesia.com), Indonesia is ranked 66th out of 81 countries participating in PISA 2022 or is ranked 15th lowest in the world (Natalia, 2024). The ranking is generated based on the level of registration, completion, and permission at each level of education. This may indicate that there is still a lack of improvement in the quality of education in Indonesia.

In the era of the industrial revolution 5.0 in the world of education, the focus is on the development of student competencies and skills in facing the current digital era. The integration of technology in student-centered learning can create a more interactive and enjoyable learning experience compared to teacher-centered learning. Because, in the rapidly changing digital era, the skills needed by students must continue to develop. With individual participation and adaptation to the development of competencies and knowledge, quality education can be realized.

In reality, individual participation in education in Indonesia is still a major challenge. This can be seen from the results of the ranking data launched by the Program for International Student Assessment (PISA) in 2022. Indonesia is still relatively low compared to other countries. This can be seen from Indonesia's low level of literacy, mathematics, and science among students. One of the factors for the low PISA results was the lack of student involvement in learning. Student involvement or student engagement is a form of active effort made by students in learning activities, by contributing with full attention, giving time, and energy and being involved in learning activities (Muniroh, 2015).

In the concept of 21st century learning, students need to be actively involved in improving their understanding, critical thinking and problem-solving skills, working together, having a high level of creativity, and communication skills to interact. According to Su et al. (2024) students who are actively involved are more likely to succeed in achieving high academic achievement in learning, because it involves physical, emotional, and mental aspects during the learning process. With consistent involvement, students are able to overcome problems and challenges in developing skills in learning.

Based on previous research by Ibrahim et al. (2024), student engagement in learning is influenced by factors such as self-confidence, motivation, social support, psychological stress, and interaction in learning. This study focuses on self-efficacy and academic motivation, which have been widely discussed in student engagement studies, with positive results found by Bedenlier et al. (2020) and Hong et al. (2021). In addition, Raihan (2024) confirmed the positive influence of academic motivation on student engagement. This study also examines learning agility, which although still developing, has been shown to have a significant influence on student engagement, as shown by Jeon et al.

(2022). This study introduces novelty by focusing on the Vocational High School sector in Jakarta, different from the University sector in China in previous studies. In addition, the use of the mediating variable learning agility is the uniqueness of this study, which was not discussed in previous studies.

A preliminary study conducted on students of SMK X Jakarta identified various problems related to student engagement and motivation. Most students were less actively involved in learning, indicating the need to increase engagement for more effective learning. Many students felt hesitant in completing assignments or independent tests, indicating low self-efficacy. The decline in academic motivation was also reflected in the habit of students who only studied when there were assignments or tests. Some students also showed anxiety when facing learning challenges, indicating low learning agility. This study aims to analyze the effect of self-efficacy on the engagement of SMK X Jakarta students through the mediation of learning agility, which is expected to be an additional reference in the study of student engagement with these mediation variables.

LITERATURE REVIEW

Student engagement is a student's effort to be actively involved in school activities in order to achieve successful outcomes (Trowler, 2010). This engagement includes cognitive, behavioral, and emotional dimensions, involving mental activity, active participation, and students' affective responses, both positive and negative (Hiver et al., 2024). Self-efficacy, according to Bandura (1997), is an individual's belief in their ability to achieve goals, which involves dimensions of level, strength, and breadth (Bandura, 2006). Academic motivation, both intrinsic and extrinsic, drives individuals to achieve learning goals (Ahmadi et al., 2023; Wang & Demerin, 2023). Learning agility is an individual's ability to apply experience and knowledge in new situations, encompassing the dimensions of individual, outcome, mental, and change agility (De Meuse et al., 2010; Ghosh et al., 2021; Ozgenel & Yazıcı, 2021).

Self-efficacy plays a role in student engagement (H1). Where students become more confident in their ability to learn. This is supported by several previous studies. According to research conducted by Meng & Jia (2023), Ummah (2022), Wu & Ma (2022), and Salsabila & Kusdiyati (2021), self-efficacy can positively influence student engagement. Self-efficacy can improve academic performance or student engagement in learning directly.

Academic motivation plays a role in student engagement (H2). Students can be motivated and behave actively due to the positive influence of learning motivation. This is supported by several previous studies. According to research conducted by Wang (2022), Chan et al. (2023), Nurrindar & Wahjudi (2021), and Setiamurti et al. (2023) that academic motivation has a positive effect on student engagement.

Learning agility is the ability to learn something quickly and be able to apply it. Students are required to be able to absorb and apply the learning that has been received. This requires direct involvement from the students themselves in the learning process. So, according to previous research presented by Jeon et

al. (2022), Saputra et al. (2021), Kim et al. (2018) stated that there is a positive influence of learning agility on student engagement (H3).

Self-efficacy has an influential role in learning agility (H4). According to previous research conducted by Khildani et al. (2021), Kusumah et al. (2024), Lesmana & Ahmad (2022), and Cho & Jun (2022) that self-efficacy has a positive influence on learning agility. Because, with the belief in students in completing certain tasks, it must be supported and aligned with the ability to adapt quickly by adjusting to the situation.

Academic motivation has an influence and positive impact on learning agility (H5). This is supported by several previous studies produced by research conducted by Syarqi & Widiana (2024), Taufik et al. (2022), Yim & Lee (2021), and Mu & Yanchinda (2024). Academic motivation can encourage students to achieve targets in fast adaptation learning to achieve the goals implemented.

Good student engagement contributes to the optimal achievement of learning goals. Research by Jian (2022) and Zhong et al. (2023) shows a positive influence between academic self-efficacy and student engagement through learning agility, where adaptive students are able to utilize past experiences to face new situations. Similar results were found in the research of Khildani et al. (2021) on employees, which showed that self-efficacy through learning agility has a positive and significant influence on the contribution of employee performance in carrying out tasks and responsibilities (H6). This finding shows the alignment between various related studies.

Academic motivation positively influences student engagement through learning agility (H7), where motivated students tend to be agile in adjusting their behavior according to situations and conditions. Research by Chonaco et al. (2024), Hanifah & Wicaksana (2024), and Jian (2022) supports this finding, showing that students with high academic motivation tend to be enthusiastic and persistent in learning new things, facing challenges, and solving difficult problems. They actively participate, complete new tasks, and are able to adapt well to various learning situations.

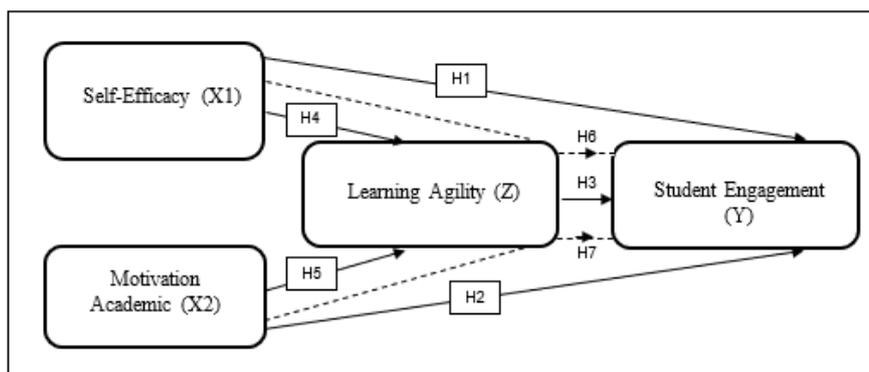


Figure 1. Conceptual Framework

METHODOLOGY

This study uses a quantitative method with a descriptive design to analyze the effect of self-efficacy and academic motivation on student engagement through learning agility mediation. Data collection was carried out through a

survey using a questionnaire, which contained structured questions and was not manipulated by the researcher (Kusumastuti et al., 2020). To test the validity of the data, this study used Smart PLS-SEM. The study population consisted of 252 students, with a research sample of 155 students and a success rate of 95%.

The data collection technique in this study was by taking primary data sources with survey techniques. Where researchers use a small part of the population, or use research samples. This study uses a survey tool in the form of a questionnaire which is carried out by providing a set of statements using a five-point Likert scale. Where according to Likert in Roselidyawaty & Rokeman (2024) developed a Likert scale value using five points, with response options ranging from "strongly agree" to "strongly disagree", and including the middle point, namely "neutral".

In this study, statistical data analysis used the Partial Least Square (PLS) approach. Where PLS is a form of Structural Equation Modeling (SEM) model. According to Sholihin (2021) SEM-PLS is a causality approach that aims to maximize the variance of variables and can work efficiently with small sample sizes and complex models. The PLS SEM model can be carried out in three stages, namely: measurement model (Outer Model), Structural model (Inner Model), and hypothesis testing.

RESEARCH RESULT

Analysis of the outer model is used to measure the validity and reliability of the relationship between latent variables (constructs) and their indicators. In this study, the data used has met the requirements of the measurement model score, which is more than 0.7, which indicates good validity and reliability. Overall convergent validity of the statement indicators for each dependent variable (Y), namely Student Involvement and independent variables (X), namely Self-Efficacy and Academic Motivation, as well as the mediating variable (Z), namely Learning Agility, have met the requirements that the loading factor value reaches a result of > 0.7 and is declared valid.

Discriminant validity analysis aims to ensure that the indicators between variables do not have a strong correlation. This is measured using the Average Variance Extracted (AVE) value, which shows the extent to which the construct is related to its indicators. The requirement for testing the AVE value is greater than 0.5. The higher the AVE value, the stronger the indicator. The AVE value results table can be used to see the results of this calculation.

Variable	Average Variance Extracted
Student Engagement (Y)	0.602
Self-Efficacy (X1)	0.639
Academic Motivation (X2)	0.576
Learning Agility (Z)	0.604

Figure 2. Average Variance Extracted (AVE)

Based on the AVE results, the AVE values for each construct in this study are as follows: Student Engagement (Y) of 0.602, Self-Efficacy (X1) of 0.639, Academic Motivation of 0.576, and Learning Agility (Z) of 0.604. Since all constructs have an AVE value of more than 0.5, it can be concluded that all constructs in this study are valid.

Composite reliability analysis calculation aims to measure the alignment, consistency, and accuracy of the construct research instrument. The calculation results show that a reliability value greater than 0.7 indicates that the construct has high reliability. In addition, reliability can be strengthened by measuring the Cronbach's alpha value, which if more than 0.7, indicates good reliability. In this study, the results of the Cronbach's alpha test showed a high level of reliability.

	<i>Composite reliability (rho_c)</i>	<i>cronbach's alpha</i>
Student Engagement (Y)	0.963	0.959
Self-Efficacy (X1)	0.964	0.959
Academic Motivation (X2)	0.956	0.951
Learning Agility (Z)	0.963	0.959

Figure 3. Composite reliability

Inner model analysis is a form of measurement that aims to measure the relationship between variables that influence each other. The inner model consists of R-Square and F-Square. R-Square aims to explain the influence of exogenous or independent variables on endogenous or dependent variables.

	<i>R-square</i>	<i>R-square adjusted</i>	<i>INF</i>
Student Engagement (Y)	0.758	0.753	Strong
Learning Agility (Z)	0.790	0.787	Strong

Figure 4. R-Square

Based on the R-Square test result table (R2), the R-Square value for student engagement is 0.758, which indicates that the exogenous constructs, namely self-efficacy (X1) and academic motivation (X2), can explain student engagement (Y) with a high level of strength. Meanwhile, the R-Square value for learning agility is 0.790, which indicates that both exogenous constructs can also explain learning agility (Z) with a high level of strength. In conclusion, self-efficacy (X1) and academic motivation (X2) have a strong relationship with student engagement (Y) and learning agility (Z).

F-Square aims to determine the impact size (effect size) between exogenous or independent variables on endogenous or dependent variables. The F-Square results can be shown in the following figure:

	<i>X1</i>	<i>X2</i>	<i>Y</i>	<i>Z</i>
Self-Efficay (X1)			0.471	0.237
Academic Motivation (X2)			0.053	0.431
Learning Agility (Z)			0.176	
Student Engagement (Y)				

Figure 5. F-Square

Based on the F-Square test result table, it can be explained as follows: first, the F-Square between self-efficacy (X1) and student engagement (Y) shows a value of 0.471, which indicates a strong relationship. Second, the F-Square between self-efficacy (X1) and learning agility (Z) shows a value of 0.237, which indicates a moderate relationship. Third, the F-Square between academic motivation (X2) and student engagement (Y) shows a value of 0.053, which indicates a weak relationship. Fourth, the F-Square between academic motivation (X2) and learning agility (Z) shows a value of 0.431, which indicates a strong relationship. Finally, the F-Square between learning agility (Z) and student engagement (Y) shows a value of 0.176, which indicates a moderate relationship.

Hypothesis testing, direct effect has the aim of testing the hypothesis of direct influence between independent variables on dependent variables.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1 -> Y	0.666	0.657	0.086	7.739	0.000
X2 -> Y	0.239	0.247	0.104	2.295	0.022
Z -> Y	0.451	0.470	0.143	3.151	0.002
X1 -> Z	0.396	0.398	0.079	5.034	0.000
X2 -> Z	0.534	0.533	0.079	6.759	0.000

Figure 6. path coefficient

The results of the study indicate that Self-Efficacy has a significant and positive direct effect on Student Engagement with a path coefficient of 0.666, indicating a strong effect. The T-Statistic value of 7.739 and P-Value of 0.000 confirm that this effect is significant. In addition, Academic Motivation also has a positive and significant effect on Student Engagement, although with a moderate effect, with a path coefficient of 0.239, T-Statistic of 2.296, and P-Value of 0.022. Learning Agility also shows a significant and positive effect on Student Engagement with a path coefficient of 0.451, T-Statistic of 3.151, and P-Value of 0.002, indicating a significant relationship.

The study also found that Self-Efficacy has a significant effect on Learning Agility with a path coefficient of 0.396 and T-Statistic of 5.034, P-Value of 0.000, indicating a moderate effect. Academic Motivation has a strong influence on Learning Agility, with a path coefficient of 0.534, T-Statistic 6.759, and P-Value 0.000, indicating a highly significant relationship. Overall results show that both Self-Efficacy and Academic Motivation have a strong influence on both Student Engagement and Learning Agility, with a significant contribution in improving the learning process.

Indirect Influence has the aim of testing the hypothesis of indirect influence between independent variables on dependent variables mediated by intervening variables.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
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X1 -> Z -> Y	0.178	0.186	0.065	2.745	0.006
X2 -> Z -> Y	0.241	0.253	0.093	2.600	0.009

Figure 7. path coefficient indirect effect

The results of the study indicate that Self-Efficacy has an indirect and significant effect on Student Engagement through Learning Agility, with a path coefficient of 0.178. The T-Statistic of 2.745 and P-Value of 0.006 confirm that the effect is significant. In addition, Academic Motivation also has an indirect and significant effect on Student Engagement through Learning Agility, with a path coefficient of 0.241, T-Statistic of 2.600, and P-Value of 0.009, indicating a significant relationship. Both of these findings indicate that Learning Agility acts as a mediator that strengthens the relationship between Self-Efficacy and Academic Motivation on Student Engagement.

DISCUSSION

The study results show that self-efficacy significantly and positively impacts student engagement, meaning that higher self-efficacy leads to higher engagement in learning. This finding aligns with previous studies by Meng & Jia (2023), Wu & Ma (2022), Ummah (2022), and Salsabila & Kusdiyanti (2021). Therefore, H1 is accepted, indicating the importance of self-efficacy in boosting student engagement. Additionally, academic motivation also has a significant and positive effect on student engagement. Higher academic motivation leads to increased engagement in learning. This result supports Wang (2022) and aligns with studies by Chan et al. (2023), Nurridar & Wahyudi (2021), and Setiamurti et al. (2023), confirming the role of academic motivation in enhancing student engagement. Hence, H2 is accepted.

The study results indicate that learning agility significantly and positively affects student engagement, meaning that higher learning agility leads to higher engagement in learning. This finding aligns with studies by Jeon et al. (2022), Kim et al. (2018), and Saputra et al. (2021), confirming the positive impact of learning agility on student engagement. Therefore, H3 is accepted, emphasizing the role of learning agility in enhancing engagement. Additionally, the study shows that self-efficacy has a significant and positive direct effect on learning agility in students, meaning that higher self-efficacy leads to higher learning agility. This finding is supported by studies by Khildani et al. (2021), Heri Kusumah et al. (2024), Lesmana & Ahmad (2022), and Cho & Jun (2022), confirming the positive impact of self-efficacy on learning agility. Hence, H4 is accepted.

The results of the study showed that academic motivation had a significant and positive direct effect on students' learning agility, meaning that the higher the academic motivation, the better their learning agility. Previous studies support this finding, such as that conducted by Yim & Lee (2021), who found that academic motivation had a positive effect on learning agility in nursing students in Korea, where high motivation increased the speed of learning adaptation. Another study by Taufik et al. (2022) also stated that there was a positive influence between academic motivation and learning agility, supporting the acceptance of H5 in this study.

The study results indicate that self-efficacy has an indirect and significant effect on student engagement through learning agility, meaning that high self-efficacy can enhance learning agility, which in turn boosts student engagement. This finding aligns with previous research by Jian (2022) and Zhong et al. (2023), which also demonstrated an indirect positive effect between self-efficacy and student engagement through learning agility, showing that students' self-confidence can increase their learning agility, fostering active engagement. Additionally, the study found that academic motivation has an indirect and significant effect on student engagement through learning agility, meaning that high academic motivation can enhance learning agility, which subsequently positively affects student engagement. This finding is supported by studies from Jian (2022) and Chanaco et al. (2024), which noted that increased academic motivation can boost learning agility and, in turn, promote active student engagement.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study conducted on students, there is a significant and positive influence between self-efficacy and academic motivation on student engagement. This study shows that the higher the self-efficacy of students, the higher the level of their engagement in learning, which proves that H1 is accepted. In addition, academic motivation also plays an important role in increasing student engagement, where the higher the academic motivation, the higher the student's engagement in learning (H2 is accepted). The results of the study also revealed that learning agility has a significant positive influence on student engagement, which means that the higher the student's learning agility, the higher their engagement in learning (H3 is accepted).

This study also found that self-efficacy and academic motivation have a positive effect on learning agility. The higher the self-efficacy, the higher the students' learning agility (H4 is accepted), and the higher the academic motivation, the higher the students' learning agility (H5 is accepted). In addition to the direct effect, this study also revealed that self-efficacy and academic motivation have an indirect effect on student engagement through learning agility. High self-efficacy will increase learning agility, which in turn will increase student engagement (H6 is accepted), and high academic motivation will increase learning agility and student engagement (H7 is accepted).

The study found that student engagement was low, particularly in terms of interest in the learning process, suggesting a lack of enthusiasm for the material. To address this, it is recommended to assign tasks that promote independent information-seeking, such as mini-reports or presentations using alternative learning sources. Additionally, incorporating group projects, educational games, and interactive activities can help maintain student motivation. Regarding self-efficacy, students showed low ratings in persistence, indicating a lack of confidence in their abilities. To improve self-confidence, a gradual approach to problem-solving, along with group discussions and reinforcement strategies, can help students overcome their fears of failure and increase their efforts to achieve learning goals.

In terms of academic motivation, respondents showed low ratings on external regulation indicators, suggesting that praise and rewards do not effectively motivate students. This highlights the need for a more positive learning environment and motivation that focuses on long-term benefits for students' futures. Regarding learning agility, students' adaptability was rated low, indicating anxiety and a lack of confidence in handling changes in learning. To address this, it is recommended to enhance communication, provide training on small changes, and offer alternative guidance in learning. A gradual approach and fostering a comfortable, open environment can help reduce anxiety and boost student confidence.

ADVANCED RESEARCH

This study has several limitations that need to be considered. First, the study was only conducted in one school, so the results may not be generalizable to a wider context or schools with different characteristics. Second, this study can be further developed by considering other independent or mediating variables to obtain more in-depth information about the factors that influence student engagement. It is hoped that further research can improve and complement these shortcomings.

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