



Enhancing engagement: The effect of self-efficacy on student engagement through love of learning

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Article Info	Abstract
Keywords: love of learning, self-efficacy, student engagement	Student engagement is essential for academic success, particularly during adolescence, when students encounter increasing academic demands and motivational challenges. This study aimed to examine the relationship between self-efficacy and student engagement, with love of learning as a mediating variable, among public senior high school students in Kendal Regency, Indonesia. A quantitative correlational design was employed, involving 399 students selected through proportionate stratified random sampling. Data were collected using the General Self-Efficacy Scale (GSES), a love of learning scale, and a student engagement measure. The data were analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4.1. The findings indicated that self-efficacy was positively associated with love of learning ($\beta = .363, p < .001$), while love of learning was positively associated with student engagement ($\beta = .664, p < .001$). Self-efficacy also demonstrated a significant direct association with student engagement ($\beta = .183, p < .001$). Furthermore, love of learning significantly mediated the relationship between self-efficacy and student engagement ($\beta = .241, p < .001$), indicating complementary partial mediation. These findings highlight the potential importance of strengthening students' self-efficacy and cultivating their love of learning to support sustained academic engagement. The study provides practical implications for developing school guidance and counseling programs that integrate students' perceived competence with intrinsic learning motivation.
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Introduction

Education plays an important role in shaping students' intellectual, emotional, and social development as preparation for facing the demands of life in the future. At the senior high school level, students are in a dynamic phase of adolescent development, where they are required to adapt to physical, psychological, and social changes, while also facing increasingly complex academic demands. In this context, active engagement in learning is crucial because it not only affects academic achievement but also plays a role in shaping character, social skills, and long-term motivation to learn.

However, various studies reveal that student engagement levels are still not optimal. Student engagement, which includes behavioral, emotional, and cognitive dimensions, is often in the moderate to low category. This is evident from low participation in class discussions, lack of consistency in completing assignments, weak emotional ties to school, and the lack of deep learning strategies used by students. This phenomenon was also found in a number of public high schools in Kendal Regency, where student engagement in the learning process was still limited. Preliminary study results revealed problems such as low motivation, tardiness, absenteeism, and lack of focus during the learning process. These conditions indicate that learning engagement remains a real challenge in improving the quality of secondary education.

Student engagement has been recognized as one of the important indicators of academic success and student development (Fredricks et al., 2019). Fredricks, Blumenfeld, and Paris (2004) define student engagement as the behavioral, emotional, and cognitive involvement of students in the learning process.

Behavioral engagement reflects active participation in academic and non-academic activities, emotional engagement is seen in positive feelings towards school, teachers, and peers, while cognitive engagement is related to students' efforts, strategies, and depth of thinking in understanding the material. These three dimensions are interrelated and are important indicators of the quality of students' learning experiences. The factors that influence student engagement are diverse, both internal and external. One prominent internal factor is self-efficacy, which is an individual's belief in their ability to complete tasks and face challenges (Bandura, 1997).

In an effort to understand the factors that influence student engagement, psychological aspects are an important consideration, one of which is self-efficacy. Bandura (1997) defines self-efficacy as an individual's belief in their ability to complete tasks or face certain challenges. Students with high levels of self-efficacy tend to be more persistent, confident, and able to maintain motivation when facing learning difficulties. A number of previous studies (e.g., Komarraju & Nadler, 2013; Lee & Mao, 2016) have also found that self-efficacy is related to students' motivation, perseverance, and academic performance. In addition to self-efficacy, another factor that influences learning engagement is love of learning. Love of learning is a character strength that drives students to enjoy the learning process and seek new knowledge (Peterson & Seligman, 2004). Students with a high love of learning usually show greater curiosity, perseverance, and engagement in academic activities. Previous research confirms that love of learning plays an important role in strengthening intrinsic motivation and supporting learning engagement (Weber et al., 2016).

Although much research has been conducted on self-efficacy and student engagement, the relationship between the two in shaping student engagement has been relatively under-explored. Theoretically, high self-efficacy can foster a love of learning, which in turn promotes optimal learning engagement. This means that love of learning has the potential to be a mediating variable that bridges the influence of self-efficacy on student engagement. This perspective is important because it highlights that students' self-confidence alone is not enough to directly increase learning engagement; it is more effective when accompanied by a love for the learning process itself. Therefore, this study was conducted to fill this gap by examining the mediating role of love of learning in the relationship between self-efficacy and student engagement among public high school students in Kendal Regency. The findings of this study are expected to contribute theoretically to the development of educational science and provide practical implications for teachers, counselors, and policymakers in their efforts to improve student learning engagement.

Method

This study was conducted on public high school students in Kendal Regency, namely SMA N 1 Boja, SMA N 1 Limbangan, and SMA N 1 Singorojo. These schools were chosen because they have good accreditation, an adequate number of students, relevant self-development programs, and accessibility that supports research. The research sample consisted of 11th grade students selected using stratified proportional random sampling, which is a random sampling technique that divides the population into several strata based on certain characteristics (Sugiyono, 2019). This technique was chosen because the population was large and spread across several schools with varying numbers of students. From the calculations, the sample size was 399 11th grade students from public high schools in Kendal Regency.

The research instruments used in this study consisted of three main scales, namely the General Self-Efficacy Scale (GSES), the Love of Learning Scale, and the School Engagement Measure (SEM). The General Self-Efficacy Scale (GSES) developed by Schwarzer and Jerusalem (1995) was used to measure the level of an individual's belief in their ability to face various situations and challenges, covering three important aspects, namely level (the level of difficulty of the task at hand), generality (the breadth of behavior covered), and strength (an individual's belief in their ability to complete the task). This scale consists of 10 positive statements measured using a 4-point Likert scale, ranging from 1 = Never (TP), 2 = Rarely (J), 3 = Often (S), to 4 = Very Often (SS). The results of the measurement model feasibility test show that this instrument meets the goodness of fit criteria with a CFI = 0.990, TLI = 0.986, and RMSEA = 0.0723 (90% CI = 0.0566–0.0885), thus it can be concluded that the model has a good level of fit.

The Love of Learning Scale was then used to assess the extent to which individuals have a tendency, motivation, and enjoyment in seeking and acquiring new knowledge. This scale measures several important aspects, namely motivation orientation, competence, value, and well-developed individual interest, with a total of 20 statement items. Each item is measured using a 4-point Likert scale, namely 1 = Never (TP), 2 = Rarely (J), 3 = Often (S), and 4 = Very Often (VO). The results of the Confirmatory Factor Analysis (CFA) show that the Love of Learning instrument has a good model fit with a CFI value of 0.990, TLI = 0.986, and RMSEA =

0.0723 (90% CI = 0.0566–0.0885), so it can be concluded that this measuring instrument is suitable for measuring individuals' tendencies to develop a love of learning.

Meanwhile, the School Engagement Measure (SEM) developed by Fredricks, Blumenfeld, and Paris (2004) was used to measure the level of student engagement in school activities, covering three main aspects, namely behavioral engagement (active participation in academic and non-academic activities), emotional engagement (positive feelings towards school, teachers, and peers), and cognitive engagement (efforts and strategies for deep thinking in understanding subject matter). This instrument consists of 19 positive statement items measured on a 4-point Likert scale (1 = Never (NP), 4 = Very Often (VO)). The results of the Confirmatory Factor Analysis (CFA) show that SEM has a good model fit with a CFI value of 0.982, TLI = 0.977, and RMSEA = 0.0783 (90% CI = 0.0670–0.0900), so it can be concluded that this instrument is suitable for evaluating student engagement in school.

These instruments were chosen because they were appropriate for the research variables and had been widely used in previous studies, so they were expected to produce valid and reliable data. All instruments underwent validity and reliability testing before being used in the study. Data were collected by distributing Likert scale questionnaires to students directly at school. The researchers also coordinated with the school and guidance counselors to facilitate the implementation of the research. Data analysis was carried out in several stages: Instrument Validity and Reliability Test (outer model), including convergent validity, discriminant validity, and composite reliability; Model Fit Test (inner model) to assess the relationship between variables to determine the significance of direct and indirect effects through mediating variables.

The data analysis technique in this study used a quantitative approach with the help of SmartPLS (Partial Least Squares Structural Equation Modeling) software because it was in line with the research model involving latent variables with a relatively large number of indicators and allowed for testing the direct and indirect effects between variables. The analysis consists of two main parts, namely the outer model to test the validity and reliability of the instrument through convergent validity (outer loading and AVE), discriminant validity (cross loading and Fornell-Larcker criteria), and construct reliability (Composite Reliability and Cronbach's Alpha), and the inner model to evaluate the relationship between latent variables through R-square values, path coefficients, and significance tests based on t-statistics and p-values using the bootstrapping method. Thus, this analysis not only assesses the quality of the research instrument but also explains the strength of the relationship between the variables studied.

Result and Discussion

Based on the results of descriptive statistical analysis, the condition of public high school students in Kendal Regency shows that self-efficacy is in the moderate to high category, love of learning is in the moderate category, and student engagement also tends to be moderate.

Table 1. Descriptive analysis results

Variables	Max	Min	Mean	SD
Self-efficacy	40	10	30.63	10.35
Love of learning	80.00	21.00	54.76	19.12
Student engagement	76.00	22.00	41.70	16.37

n = 408

These findings provide an initial picture that although most students have a belief in their abilities, their love of learning has not yet fully become an intrinsic motivation, so that student engagement in learning is still limited to behavioral aspects and is not yet optimal in the emotional and cognitive domains. Thus, these results support the urgency of research on the influence of self-efficacy on student engagement through love of learning, because a relatively good level of self-efficacy has the potential to encourage increased engagement. However, to achieve more comprehensive learning engagement, the mediating role of love of learning is needed to strengthen students' intrinsic motivation in enjoying the learning process.

In addition, the results of the model fit test using SmartPLS obtained an SRMR value of 0.143, indicating that the model fit is still above the ideal limit (≤ 0.08) and therefore does not meet the criteria for a good fit. The NFI value of 0.740 also indicates that the model fit is still below the recommended standard (≥ 0.90), although it is close to the acceptable category. Meanwhile, the d_ULS (25.170) and d_G (4.953) values represent the distance between the empirical data and the estimated model, where the smaller the value, the better the model fit, although there is no standard cut-off. The Chi-square value of 8196.295 is relatively large, but this is reasonable considering the sample size used and the nature of PLS-SEM analysis, which does not emphasize the chi-square test. Overall, these results indicate that although the model does not fully meet the

global goodness of fit criteria, in PLS-SEM the main focus remains on evaluating the validity and reliability of constructs in the outer model and the strength of the relationships between variables in the inner model.

The SEM-PLS analysis results were then used to test the effect of self-efficacy on student engagement and love of learning as mediating variables. The analysis details are presented in Table 2, which shows the direct effect between self-efficacy, love of learning, and student engagement, as well as the indirect effect indirect effect of self-efficacy on student engagement through love of learning.

Table 2. Hypothesis results path coefficient

Relationship between variable	β	t	p
Self-efficacy → Love of learning	0.363	8.289	0.000
Love of learning → Student engagement	0.664	32.347	0.000
Self-efficacy → Student engagement	0.183	5.609	0.000
Self-efficacy → Love of learning → Student engagement	0.241	8.419	0.000

Based on the path analysis results, it was found that self-efficacy has a positive and significant effect on love of learning ($\beta = 0.363$, $t = 8.289$, and $p < 0.001$). This indicates that the higher students' self-efficacy, the stronger their love for the learning process. Students who are confident in facing academic challenges will tend to enjoy the learning process, not give up easily, and see learning as a meaningful experience. Thus, self-efficacy functions as psychological capital that encourages students to cultivate a sustainable love of learning.

Furthermore, the analysis results also show that love of learning has a positive and significant effect on student engagement ($\beta = 0.664$, $t = 32.347$, and $p < 0.001$). This finding confirms that students' love of learning is a key factor in increasing overall academic engagement. Students who have a love of learning are not only more enthusiastic about participating in the learning process, but also demonstrate consistency in completing assignments, enthusiasm in facing challenges, and perseverance in seeking new knowledge.

Additionally, self-efficacy was found to have a direct effect on student engagement ($\beta = 0.183$, $t = 5.609$, $p < 0.001$), although its influence is relatively smaller than the indirect path through love of learning. This indicates that students' self-efficacy still plays a role in increasing learning engagement, but its greatest contribution occurs when self-love of learning emerges. In other words, students with high self-efficacy will more easily develop a love of learning, and in turn, this love encourages them to be more involved behaviorally, emotionally, and cognitively in the learning process. These results reinforce the role of love of learning as a mediating variable that bridges the relationship between self-efficacy and student engagement, so that student engagement can be optimally improved through the development of self-confidence as well as the cultivation of interest and enjoyment in learning.

These findings are in line with the Social Cognitive Theory developed by Bandura (1997), which states that self-efficacy is the main foundation in shaping intrinsic motivation, perseverance, and positive attitudes towards learning activities. Other literature by Lee and Mao (2016) and Komarraju and Nadler (2013) shows that self-efficacy influences student motivation, effort, and perseverance and can predict academic performance. Students with high self-efficacy are more likely to adopt a more in-depth learning approach, which is in line with the concept of "Love of learning" (Utamimah et al. 2024). Furthermore, a study by Putra et al. (2024) found that higher levels of self-efficacy often encourage students to adopt a more in-depth learning approach, which is a strong indicator of love of learning. Individuals with high self-efficacy tend to view challenges as opportunities for growth rather than obstacles, so they are more motivated to actively engage in the learning process (Schunk & Greene, 2002). When someone believes that they are capable of understanding and mastering the subject matter, increase perseverance, curiosity, and satisfaction in learning, which are the main components of love of learning (Clifton & Harter, 2003). In addition, research by Komarraju and Nadler (2013) shows that self-efficacy contributes to an increase in intrinsic motivation that encourages individuals to continue learning and enjoy the process.

Furthermore, findings on the influence of love of learning on student engagement are in line with research by Ainley (2006), which states that students who enjoy learning demonstrate a deep learning approach, namely deep engagement in understanding the material, not merely for the sake of grades. Furthermore, Van Buren (2021) explicitly states that fostering a love of learning can increase student engagement. Moreover, a pedagogical approach based on the value of love has been proven to increase motivation, emotional well-being, and student engagement in the learning process. Tang et al. (2020) also support the notion that students with a love of learning tend to show higher participation in class, deeper cognitive processing, and positive emotional responses to the learning process. Therefore, love of learning is an important element in shaping and maintaining sustainable student engagement.

Furthermore, research by Skinner et al (2009) and Fan & William (2010) found that students with high levels of self-efficacy exhibit behaviors such as regular attendance, active participation in class, and initiative to study independently. Significantly, self-efficacy can increase peer involvement (Ansar et al., 2021). In fact, self-efficacy has been proven to function as a mediator between interpersonal relationships and various dimensions of student involvement (Zhao et al., 2024). Another study by Tella (2007) also confirmed that self-efficacy plays an important role in increasing sustained academic motivation, which in turn encourages active involvement in learning. When students believe that they are capable of mastering the material and completing academic tasks, they tend to set higher goals, show greater effort, and persevere longer in the face of learning difficulties.

Pajares (1996) states that self-efficacy is not only related to academic performance but also influences how students think and feel about the learning process itself. A study by Linnenbrink & Pintrich (2003) shows that students with high self-efficacy tend to use deeper learning strategies, have a mastery orientation, and demonstrate high levels of engagement, particularly in cognitive and affective aspects. This indicates why students with high self-efficacy tend to develop a love of learning, which in turn increases their learning engagement (Usher and Pajares, 2008).

Conclusion

This study concludes that self-efficacy has a positive and significant effect on love of learning and student engagement, while love of learning is also proven to have a positive effect on student engagement and significantly mediates the relationship between self-efficacy and student engagement. Thus, these findings emphasize the importance of strengthening self-efficacy and love of learning as effective strategies to increase student engagement in learning. Through this research, guidance counselors are expected to actively foster self-efficacy and love of learning through structured guidance programs, such as learning goal training, achievement reflection, and positive affirmations. Individual and group counseling services can be focused on increasing student motivation and enthusiasm for learning. Future research is also recommended to expand the study by adding other variables that also have the potential to influence student engagement, such as mindfulness, intrinsic motivation, social support, and school climate. In addition, future research can use a longitudinal design to observe the dynamics of changes in self-efficacy, love of learning, and student engagement over a longer period of time.

Author Contributions Statement

Puji Juliati: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft. **Awalya:** Supervision, Methodology, Validation, Writing – review & editing. **Ernest Ceti Septianti:** Supervision, Validation, Project administration, Writing – review & editing. All authors contributed to the development of the manuscript and gave their approval for the final version.

Declaration of Generative AI

ChatGPT was employed during manuscript preparation to assist with language editing and improve the clarity and flow of the writing. The authors carefully evaluated the AI-generated suggestions, made revisions where necessary, and remain accountable for the accuracy, integrity, and final content of the manuscript.

Declaration of Competing Interest

The authors declare that they have no known financial interests or personal relationships that could have influenced the conduct, analysis, or reporting of this research.

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