The influence of social support on academic performance: The mediating role of cognitive engagement

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Abstract

Academic performance, which measures a student's success in learning, is influenced by various factors. One of the most important determinants of academic performance is social support. Parents, teachers, and friends all play a critical role in providing the necessary support that affects students' cognitive engagement. Therefore, this study aimed to determine the relationship between social support and academic performance, which could be directly or indirectly mediated by cognitive engagement. The subjects used were 228 high school students in 11th grade, aged 15-18. Data were measured using Academic Performance Rating Scale (APRS), Child and Adolescent Social Support Scale (CASS), and Students Engagement Scale (SES) with Cronbach's alpha values of 0.84, 0.93, and 0.88, respectively. The mediation analysis was conducted using the PROCESS model 4 developed by Hayes. The results showed that the relationship between social support and academic performance occurred through the mediation of cognitive engagement ($\beta = 0.16$), with no direct correlation ($\beta = 0.12$, p = 0.350). Specifically, more excellent social support was associated with increased cognitive engagement ($\beta = 0.50$, p = 0.000), leading to improved academic performance ($\beta = 0.32$, p = 0.005). Therefore, it was confirmed that social support is essential to students' cognitive engagement and academic performance.

Keywords

Academic performance, social support, students cognitive engagement

Introduction

Measuring academic performance is an essential indicator of students' achievements in education. It is demonstrated by their learning outcomes, which are evaluated to determine whether their grades meet predetermined standards. In this context, academic performance has emerged as a critical benchmark for assessing students' success in meeting the required learning objectives (Ng et al., 2015). Furthermore, academic performance helps obtain information about mastery of academic fields, where the main goal is to provide skills for a more productive life (Dogan, 2015).

Academic performance plays a crucial role in education, demonstrating how students succeed in their learning process. Educational institutions and organizations have developed evaluation methods for assessing the teaching and learning process internationally, nationally, and regionally, which schools or educators then evaluate. These evaluations determine how effectively students have achieved their learning goals (Rosito, 2018).

However, limitations in the teaching and learning process also affect academic performance. For example, some students need help to meet the competencies required through the learning system, particularly in online lectures. Despite the opportunities for self-learning offered by online courses, the primary challenge is faced during the practical aspects (Mahdy, 2020). Furthermore, another opinion shows that students' academic performance in mathematics learning improved during school closures in 2020 compared to the previous year. Low-achieving students improved their academic performance compared to their high-achieving counterparts (Spitzer & Musslick, 2021).

An institution's ultimate academic performance goal is to produce favorable outcomes that lead to future job opportunities (Razak et al., 2019). Academic performance is also proof of students' learning success in an educational institution, with high performers showing a competitive edge in various aspects, including in the field of work or career (Dogan, 2015). Students with good performance will likely graduate on time (Hijazi & Naqvi, 2006). Academic performance in school positively affects productivity, intellectual skills, personal motivation, job acquisition, prestigious jobs, and career success. Therefore, achieving high academic performance is a goal that all students should strive for in the learning process, as it helps them become more productive (Dogan, 2014).

Various factors influence academic performance, including the quality of the teaching and learning process (Razak et al., 2019), parental income (Brew, 2021; Razak et al., 2019), attendance (Brew, 2021), school facilities (Brew, 2021), hard

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work (Islam & Tasnim, 2021), dedication and self-confidence (Islam & Tasnim, 2021), as well as social support from family and others (Crosnoe et al., 2004; Islam & Tasnim, 2021).

Student's academic performance is influenced by their efforts and the support they receive from their social environment. This support proves that an individual is valued and cared for by others. Typically, students receive most of their social support from their parents, role models for positive behavior. This is because the family environment is often children's primary source of early education (Crosnoe et al., 2004).

Parents play an indispensable role in their children's education, providing crucial support in the learning process, which includes assisting them with school assignments, expressing interest in their child's activities at school, such as by contacting the class teacher to inquire about academic progress, and providing facilities and stationery. The second form of social support originates from teachers, who are responsible for giving constructive feedback and encouragement on each academic task. The third form of support comes from classmates and close friends, who can serve as sounding boards for students to exchange ideas about learning difficulties, offer advice, and motivate each other (Glozah & Pevalin, 2014).

Research indicated that social support significantly enhances students' confidence in achieving academic goals and performance, positively impacting their beliefs regarding educational value, expectations, and performance (Alipio, 2020). Therefore, providing social support in the form of learning motivation, attention, and feedback is essential for enhancing students' academic performance.

A study conducted in Argentina with 760 students observed that social support positively affects academic performance. Higher support levels from parents, classmates, and close friends were associated with excellent academic performance. Additionally, social support has been shown to enhance classroom engagement, which strongly predicts academic success (De la Iglesia et al., 2014).

Social support, defined as attention, appreciation, and assistance from family, friends, teachers, and others, creates a sense of safety and gratitude for individuals (Alipio, 2020). Academic performance is often associated with complexity and pressure that can cause stress. Therefore, social support is needed by students to strengthen their belief that the resources necessary to engage diligently and excel academically are available. This can be seen as a critical indicator, primarily through stress management mechanisms (Ogbeide & Ugwu, 2016).

The cognitive engagement of students is also believed to affect academic performance. When students invest in the learning process at school, consider school an important future determinant, and self-regulate their learning, it will affect academic performance. This is consistent with results that students' cognitive engagement is a better predictor than academic performance (Dogan, 2015). Cognitive engagement is necessary for good academic performance and educational development as a competent individual in society (Mancil, 2014). Performing academic assignments, studying, and developing skills and positive behavior in school help achieve academic success. Students' cognitive engagement refers to beliefs and processes connected to school and learning

activities, and it includes indicators such as recognizing the relevance of school to future goals, self-regulation in learning, and acknowledging the significance of education for personal purposes (Mancil, 2014; Roth, 2013).

Social support also affects students' cognitive engagement (Ansong et al., 2017). It plays a role in increasing their engagement. Positive social support increases students' desire and ability to complete school assignments during the learning process and recognizes the importance of education for their future (Yazzie-Mintz & McCormick, 2012). Additionally, the support of teachers plays a vital role in enhancing student engagement across behavioral, cognitive, and affective aspects (Yazzie-Mintz & McCormick, 2012). Furthermore, social support from parents, teachers, and classmates positively impacts students' cognitive engagement. Students with high levels of social support tend to exhibit better cognitive engagement, whereas those with less social support have lower engagement scores (Ansong et al., 2017).

Student engagement has been identified as a mediator in several studies, consistent with the finding that perceptions of learning support affect adolescents' affective, behavioural, and cognitive engagement differently, ultimately impacting academic performance (Jelas et al, 2016). Cognitive engagement is the best predictor of success and the most potent mediator for all three types of learning support. Furthermore, while emotional intelligence and resilience directly predict students' life satisfaction, they do not necessarily lead to improved academic performance (García-Martínez et al., 2021). In contrast, student engagement has been shown to indirectly mediate between life satisfaction and academic performance.

Based on the above discussion, this study aims to examine the relationship between social support and academic performance, either directly or through cognitive engagement as a mediator variable. Adequate social support can encourage students to become more cognitively engaged, a critical predictor of academic success. When students perceive the significance of education for their future and become self-regulated learners, their cognitive engagement levels are heightened, which in turn is likely to lead to improved academic performance.

The problem addressed in this study is to determine the mediating status of students' cognitive engagement on the relationship between social support and academic performance. The aim was to test a model of the relationship between social support, students' attention, and academic performance through the mediation process. The theoretical benefit of this study is to provide a deeper understanding of how academic performance can be developed, contributing to the knowledge base in the field of educational psychology. Meanwhile, the practical benefit was raising awareness of social support's critical role in promoting cognitive engagement.

Method

Participants

The sample was selected using the quota sampling technique, which involves determining a specific number of participants. The study subjects comprised 114 senior high school students in grade 11, aged between 15 to 18 years. The sample

Table 1. Subject demographic data (n=184)

Characteristics	n	%
Major		
Mathematics and natural sciences	114	50.0
Social sciences	114	50.0
Gender		
Male	76	33.3
Female	152	66.7
Age		
15 years	5	2.2
16 years	92	40.4
17 years	124	54.4
18 years	7	3.1

Table 2. Description of study variable

Variable	SD	M	Academic Performance	Social Support
Academic performance	0.66	3.77	1	
Social support	0.38	2.92	0.270	1
Students engagement	0.51	3.65	0.221**	.374**

Note: N= 228; **p<0.01

was divided into two groups, consisting of 114 students majoring in Mathematics and Natural Sciences (MIPA) and 114 students majoring in Social Sciences (IPS). The selection of participants was based on the consideration that individuals in this age group experience rapid cognitive, social, emotional, intellectual, and career changes (Batubara, 2016). Additionally, grade 11 students were expected to have better adapted to the school environment. Finally, the sample quota was 50% for MIPA students and 50% for IPS students.

Participants were asked to complete an online survey using Google Forms to measure the variable by filling out the social support and student cognitive engagement scale. Before completing the study, participants were also asked to provide personal and demographic data, such as their names, ages, and grade. Meanwhile, teachers completed the performance scale for the students. For more information, see Table 1.

Research Instruments

The Academic Performance Rating Scale (APRS) was used to measure student academic performance (DuPaul et al., 2019). This involves teachers reporting on students' performance. The Language Centre translation agency translated the original scale from English to Indonesian. APRS used in this study consists of two aspects: the completion of tasks by students and the accuracy of their performance in various study areas. The scale comprises 19 items and uses a Likert scale with five answer choices. The items include "completing math assignments" and "completing written language assignments." In this study, APRS showed a reliability of 0.84, indicating that the scale is reliable and helpful in measuring academic performance.

The Students Engagement Scale (SES) measures students' cognitive engagement (Dogan, 2014). The Language Centre translation agency translated the original scale from English to Indonesian. The instrument consists of 3 sub-scales: emotional, cognitive, and behavioral engagement. However, only students' mental attention was used, and the aspects measured were self-regulation, personal goals in education, and determination to succeed in school. SES consists of 12 items, including "I give all my attention during class lessons," using a Likert-type scale. SES has a reliability of 0.84, meaning that the scale is reliable and valuable in measuring student engagement.

Child and Adolescent Social Support Scale (CASS) level 2, developed by Mufidah et al. (2021), was used to measure social support. This scale is applied to students in grades 7-12 and is designed to assess support from parents, classmates, friends, and teachers (Malecki & Demaray, 2002). CASS consists of three aspects: emotional, instrumental, informational, and appraisal. It also comprises 29 items, including "My parents give me good advice." CASS has a reliability of 0.92, implying that the scale is reliable and helpful in measuring students' academic performance.

Data Analysis Technique

The research method used in this study was a quantitative approach, as described by Creswell (2013), which systematically demonstrates phenomena and causal relationships. The type of quantitative approach employed in this study was correlational, and the objective was to determine the relationship between social support and academic performance mediated by students' cognitive engagement.

Testing was performed by the Process Hayes Model 4 (Hayes, 2013) using SPSS Statistic 25. This technique employed the contribution of each variable, which is shown by the size of the path coefficient between X (social support), Y (academic performance), and M (students' cognitive engagement).

Before data analysis, it was ensured that the data had passed the normality and multicollinearity assumption test. The results of the normality assumption test show that the Kolmogorov-Smirnov test showed a significant value of 0.200 for academic performance and social support, while students' cognitive engagement was 0.067, implying that the data were normally distributed ($p>0.05$).

The multicollinearity assumption test show that the correlation test showed a significant moderate relationship between variables. Social support positively and significantly correlated with academic performance ($r=0.27$; $p=0.000$). It had a positive and significant correlation with students' cognitive engagement ($r=0.37$; $p=0.010$), which had a positive and significant correlation with academic performance ($r=-0.22$; $p=0.010$). These indicated no multicollinearity ($r>0.80$) among variables.

Result

As can be seen in the table 2, the average subject has high social support, cognitive engagement, and academic performance.

Hypothesis 1. Social support does not significantly affect academic performance ($\beta=0.12$; $p=0.350$), as it is between -0.35 and 0.12, with 0 falling within the range. Based on the analysis results, it was concluded that social support from teachers, parents, and students does not directly affect

Table 3. The results of data analysis of the amount of contribution of each variable

Variable	Effect	LLCI	ULCA
Direct effect of Social Support → academic performance (c')	0.12	0.12	–0.35
Social Support → Students cognitive engagement (a)	0.50	0.67	0.34
Students cognitive engagement → Academic performance (b)	0.32	0.49	0.14
Total effect of social suport → Academic performance (c)	0.11	–0.18	0.27
Indirect effect of social support → Students' cognitive engagement → Academic performance (axb)	0.16	0.26	0.07

academic performance. However, it requires the role of a mediator variable.

Hypothesis 2. The effect of social support on students' cognitive engagement was positively significant (β=0.50; p<0.001) and fell between 0.33 to 0.66, as 0 is not included in the range. Based on the analysis, it was concluded that the higher the social support score, the more excellent students' cognitive engagement; hence, hypothesis 2 is accepted.

Hypothesis 3. There was a significant positive effect between students' cognitive engagement and academic performance (β=0.32; p=0.005). The result falls between 0.14 and 0.50, with 0 not included in that range. The analysis concluded that the higher students' cognitive engagement, the greater their academic performance; hence, hypothesis 3 was accepted.

Hypothesis 4. Social support and academic performance through students' cognitive engagement had a significant indirect effect. From the analysis using Process Hayes, the value was 0.16, between 0.07 and 0.26, with 0 not included in the range. It was concluded that students' cognitive engagement fully mediates the relationship between social support and academic performance. Hence, hypothesis 4 was accepted.

Discussion

This study aims to investigate the role of students' cognitive engagement in mediating the effect of social support on academic performance. The results showed that the first hypothesis was rejected, meaning social support had no significant effect on academic performance. Few studies directly examine the relationship between social support and academic performance. Some showed that the effect was relatively small. Hence, a mediator variable is needed (Li et al., 2018).

While emotional, material, informational, and evaluative support from parents, teachers, and friends are essential, they may not directly enhance academic performance (Malecki & Demaray, 2002). Social support serves as a means of adapting to task demands but still requires other variables as mediators to improve academic performance (Topor et al., 2010).

Study reported that social support can enhance students' academic performance by providing motivation and assistance during the transition from high school to college and adjusting

to new responsibilities and requirements in higher education. Specifically, students who receive high social support and possess strong learning motivation tend to perform better academically (De la Iglesia et al., 2014).

The results of the second hypothesis indicate that social support positively, directly, and significantly influences students' cognitive engagement. This aligns with previous reports that social support from teachers, peers, and parents can increase students' cognitive engagement in school (Ansong et al., 2017). For instance, parents who pay attention to their child's school needs, both morally in the form of motivation and a comfortable environment for learning at home and material support regarding necessary learning equipment, can foster cognitive engagement. With full support from parents, children will be motivated, and their cognitive engagement will be enhanced (Glozah & Pevalin, 2014). This can also be affected by teacher support, such as effective communication. Furthermore, peer support is essential in increasing students' cognitive engagement by showing compliance with academic assignments (Wang & Eccles, 2012).

The result showed that hypothesis three is accepted, meaning students' cognitive engagement had a significant positive effect on academic performance. When this predictor is high, academic performance will be increased. Studies have consistently shown that student engagement, encompassing cognitive, practical, and behavioural aspects, is positively related to success and is a significant predictor of academic performance in school (Li et al., 2018).

According to previous studies, students can improve their academic performance by putting more effort and concentration into their academic tasks, engaging in continuous learning, and developing skills and positive thinking in school (Roth, 2013; Mancil, 2014).

The result also showed that cognitive engagement mediates the effect of social support on academic performance. The mediating role requires that the effect of social support and student engagement on academic engagement be significant. According to the analysis, both requirements were met, indicating a fully mediating role of students engagement in the relationship between social support and academic performance.

Academic performance was explained based on the social cognitive theory that most human learning occurs in social environments. This is performed through observing others and being affected by the environment. Individuals can also examine the usefulness and suitability of modelled behaviour and then act according to the beliefs about the expected outcomes (Schunk, 2012).

Previous studies explained that perception, memory, and attention processes can affect an individual's learning attitude (Bandura, 1989). This theory emphasized that much learning occurs in social environments. Social factors play a significant role in cognitive processes and can serve as a motivator to achieve the best results. The theory was based on the assumption that social and cognitive processes are central to understanding human motivation, emotion, and behaviour. It views behaviour as a component of models that interact and affect environmental and human individual components, including emotional and personal cognition.

As influenced by social support, cognitive engagement refers to the degree to which students employ effective learning strategies and make informed decisions about their learning activities. Cognitively engaged students can make choices when they face difficulties and strive for personal success in academic pursuits (Greene et al., 2004).

The fundamental role of students' cognitive engagement was shown in the effect of social support on academic performance. Physical and emotional social support from parents, teachers, and peers enhances students' cognitive engagement in learning (Ansong et al., 2017). Students who exhibit cognitive engagement will likely improve learning, increasing academic performance (Greene et al., 2004).

Based on the above explanation, it was proved that students' cognitive engagement fully mediated the effect of social support on academic performance. Furthermore, this study has been examined explicitly by a few studies. The previous study examined the effect of social support on academic performance using other mediators and has not been specific to students cognitive engagement. The limitations of this study were that the scale was measured by teachers using a different approach (filled out by students) or objective measures such as students' academic achievement, hence, yielding different results.

Conclusion and Implications

Based on the results of the study, it was concluded that students cognitive engagement plays a fully mediating role in the relationship between social support and academic performance. The data analysis support the hypothesis, hence, it can be accepted. Therefore, further study is recommended to include additional indicators to supplement the existing variable, and to increase the sample size to strengthen the results.

The study has several implications. Firstly, providing support in the form of facilities, motivation, and a comfortable as well as safe learning environment is crucial for parents. For teachers, support can be given through effective communication and teaching methods that are fun and easy for students to understand. Peers can also provide support by assisting classmates who are experiencing challenges. These forms of support play an important role in increasing students' cognitive engagement, which ultimately leads to improved academic performance. In the future, different approaches or other measures of academic performance should be used to further explore the topic.

Declaration

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Author contributions

The author's contribution focuses on the way of developing a mediation model study and improving the originality and novelty of the method being developed in the study.

Additionally, the author has made improvements to the measuring instruments and variables used in the study.

Conflict of interest

There is no conflict of interest from various parties.

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