Does the use of social media and Motivational Sources Affect Learning Achievement? Reflections on the Learning System of Junior High School Students

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Abstract. This study examines the impact of social media and motivational sources on learning achievement during the pandemic among junior high school students. The research specifically analyzes the effects of intrinsic and extrinsic motivation, as well as the role of social media in providing support for learning. Using a quantitative approach, data were collected from 327 students through questionnaires and analyzed via regression analysis. The results indicate that intrinsic motivation significantly influences learning achievement (B = 0.135, t(198) = 5.150, p < .001), while extrinsic motivation also has a significant effect (B = -0.057, t(198) = -2.090, p = .037). However, the hypothesis regarding social media as a supporting infrastructure for learning did not yield significant results (B = 0.031, t(198) = 0.399, p = .690). In contrast, social media's role in providing social support positively impacted learning achievement (B = 0.209, t(198) = 2.567, p = .011). No significant relationship was found between gender and academic achievement (B = 0.103, t(198) = 0.328, p = .743).The regression model explained 18% of the variance in learning achievement, indicating that additional factors may influence academic success. These findings highlight the importance of fostering intrinsic motivation and suggest that educational institutions should implement strategies to enhance students' intrinsic motivation, such as engaging learning activities and supportive environments. Furthermore, schools should leverage social media as a tool for providing social support, which can enhance learning outcomes. Future research should explore effective programs aimed at increasing intrinsic motivation to ensure sustained academic achievement utilizing online learning approaches.

Keywords: *Student motivation, social media, learning achievement, pandemic.*

Introduction

The Covid-19 pandemic, which has been going on for more than the last two years, has had a huge impact on various aspects of life. Not only in the health sector and the economic sector which have been frequently discussed, the pandemic has also had a major impact on the education sector. Various studies such as Mahande, Malago, Abdal, Yasdin, (2021), and Tan (2021) stated that academic performance or learning achievement decreased during the pandemic. The reasons include loss of motivation during online

learning due to a lack of infrastructure support for learning or loss of social support, whether from lecturers or colleagues on campus (Tan; 2021).

However, there is research that states that the COVID-19 pandemic has not had a significant impact on various academic aspects. This is the conclusion of research from Pasión, et al. (2020) who examined the impact of the pandemic on college students. However, students may be used to studying independently so they don't experience problems when they have to undergo face-to-face learning.

Whether there is a pandemic or not, there are several factors that influence learning achievement. According to Walberg's theory, academic achievement is the psychological characteristics of each student and the student's psychological environment which influences educational outcomes both cognitively, behaviorally, and attitudinally (Reynolds & Walberg, 1992). One of the psychological factors that is often discussed in determining academic achievement is motivation. During the pandemic, motivation, whether originating from intrinsic or extrinsic motivation, has a significant influence on achievement. The influence of motivation, especially extrinsic motivation, becomes stronger when moderated by online learning behavior (Meng and Hu; 2022). Apart from motivation, other factors that can influence learning achievement are positive expectations (Wigfied and Gladstone; 2019); self-regulated learning or the ability to regulate oneself to learn (Theobald; 2021 and Ozturk; 2022); variations in learning methods (Bosch, Seifried & Spinath; 2021); and how to teach (Bai et al. 2021).

Even though research on learning achievement has been carried out a lot and is quite comprehensive, the number and quality of research related to the same thing during the pandemic is still relatively limited, especially among children and teenagers, such as junior high school (SMP) students. The current research is only limited to proving the impact of the pandemic on learning achievement but has not yet reached how to improve learning achievement during the pandemic, especially by having to use online or online school methods. Previous research has only reached the stage of discussing how technology can be used to support educational infrastructure (Rugutt & Chemosit, 2005) but has not discussed how the use of technology can improve learning achievement during the pandemic, especially for teenagers. Because there is still uncertainty as to whether the

pandemic will end, strategies for improving student achievement by learning online must continue to be studied and prepared.

Tan (2021) concluded that learning achievement fell during the pandemic due to a decrease in motivation due to a lack of learning infrastructure and social support. In practice, social media can be used as a learning infrastructure, such as for sharing documents, seeking additional knowledge, and discussing and interacting in cyberspace. However, research that proves the benefits of social media in the learning process such as Hosen et al (2021) in teaching has only proven the impact of social media on the teaching and learning process and has not tested its benefits in maintaining academic achievement. Apart from that, this research was also conducted on students. However, whether the same benefits are felt by students at lower educational levels such as junior high school students have never been proven. They may need more social support and infrastructure during online learning than students.

Thus, this research aims to find the source of student motivation and its relationship with learning achievement during the pandemic. By knowing this, schools and teachers can prepare teaching and learning mechanisms that pay more attention to these sources of motivation as a strategy to improve student learning achievement. Apart from that, this research also wants to test whether the use of social media can be a supporting factor for learning achievement, both as a supporting infrastructure for teaching and learning and to obtain social support. This is important to get a more comprehensive picture later on of how student achievement during online learning can be improved.

Learning achievement

Walberg's theory of academic achievement states that the psychological characteristics of individual students and their psychological environment directly influence educational outcomes (cognitive, behavioral, and attitudinal) (Reynolds & Walberg, 1992). Furthermore, Walberg's research identified nine key variables that influence educational outcomes: student ability/prior achievement, motivation, age/developmental level, quantity of instruction, quality of instruction, classroom climate, home environment, peer group, and exposure to outside mass media. school (Walberg, Fraser, & Welch, 1986).

Intrinsic and Extrinsic Motivation

Self Determination Theory (SDT) as in self-development theory, is a theory of human motivation that concentrates on qualities and motives, which relate to individual motivations that regulate their behavior. In SDT there are 4 types of motivation. First, external regulation is the least autonomous form of motivation. This motivation consumes the promise of a reward or punishment. For students in high school, these rules may manifest in activities where they can be praised by the teacher or recognized based on the usefulness of the identified behavior. For example, students may identify with the value of an activity and be willing to accept responsibility for regulating their behavior in performing it. Fourth and finally, the most autonomous form of extrinsic motivation is integrated regulation, in which students integrate their behavior with other aspects of their core sense of self.

The Impact of the Pandemic on Learning Achievement

The impact of the pandemic on the world of education is an interesting thing to study. There have been several studies published over the last two years that have studied this problem. For example, Mahande, Malago, Abdal, and Yasdin (2021) conducted research that aimed to find out what factors influenced the learning achievement of students who used web-based learning (WBL) during the COVID-19 pandemic. This research used 270 university-level students as a sample in Indonesia and analyzed the data using the Structural Equation Model (SEM). The results of this research show that attitude, anxiety, and motivation influence the learning achievement of students who use WBL. However, there is no influence of gender on learning achievement.

In contrast to Mahande et, al. (2021), Pasión, Dias-Oliveira, Camacho, Morais, and Franco, (2020) found the opposite. Pasión et al (2020) conducted research that aimed to see whether the Covid-19 pandemic hurt students' academic conditions, such as motivation, feelings of connection with the university, and dimensions of attachment to the campus. This research surveyed two groups of undergraduate students, where one group only took face-to-face classes while the other group experienced a transition from face-to-face classes to online classes. The results of this research show that there is no statistically significant effect on motivation, both intrinsic motivation and extrinsic motivation in students, during

the pandemic and feelings of connection with the university. However, there is a moderate negative relationship in the dimension of students' connection with their campus.

However, there is an explanation related to the research of Mahande et, al. (2021) which may be explained by other research. This can be concluded from Tan's (2021) research. Research conducted by Tan (2021), aims to investigate the impact of Covid-19 on student learning before and after large-scale social restrictions were implemented. This research selected 282 university-level students in Malaysia as samples from the survey conducted and the survey results were tested using the T-test. Students lose motivation and learning performance during PSBB. Lack of learning support infrastructure and social support from teachers and friends is one of the reasons. Students cannot focus and lose motivation.

If Tan (2021) discusses it from a motivational perspective, Raccanello et, all (2022) discuss it from the perspective of mastery and self-confidence or self-efficacy in learning. Based on the belief that the pandemic hurts higher education, Raccanello, et al. (2022) tested the application of control value theory to learning achievement and motivation while participating in technology-based learning. This research was conducted using 17,019 university students from 13 countries as participants. The data collected was analyzed using a structural equation model. The results of the analysis show that technology-based learning self-efficacy and computer self-efficacy strengthen the relationship between thinking ability and the quality of motivation and emotions related to learning achievement.

The research results of Raccanello et al (2022) are also in line with research conducted by Hu, et al. (2022). Hu, et al. (2022) concluded that there is general anxiety when learning to use technology-based learning during the pandemic. This research was conducted in China using a technology-based acceptance method to examine differences between students with and without general anxiety in using technology-based learning. Although various factors cause learning achievement to decline during the pandemic. The researchers feel that the factors that influence learning achievement also need to be explored further. For example, Meng and Hu (2022) conducted research aimed at finding the role of online learning behavior on academic achievement and its relationship with motivation. This research surveyed 148 university students in China and analyzed the data

using a regression approach. The research results show that extrinsic motivation influences academic achievement both directly and indirectly through online learning behavior. Meanwhile, intrinsic motivation only influences it indirectly.

The Relationship between Motivation and Learning Achievement

Of the many factors that can influence academic achievement, many studies always involve the presence of motivation behind better academic achievement. For example, Xie, et al. (2020) studied the relationship between motivation and engagement with the learning achievement of 10,527 students in grades 9 to 12 from 12 public schools in Ohio, United States. This research shows that there are 7 academic motivations, starting from motivated, externally regulated, balanced demotivated, moderately motivated, identified/externally regulated, balanced motivated, and self-motivated. Students who have different motivation profiles have differences in cognitive and social engagement, as well as academic achievement. Using multi-group analysis, this study found that motivational profiles strengthened the relationship between engagement and academic achievement.

The research results of Xie, et al. (2020) strengthen the results of previous research, namely (Ayub 2014). In his research, Ayub (2014) mapped the relationship between intrinsic and extrinsic motivation and learning achievement. Based on previous research, there is a positive relationship between intrinsic and extrinsic motivation and learning achievement, and there are differences between intrinsic and extrinsic motivation between boys and girls. This research wants to test the truth of the results of previous research. This research used 200 students as a sample consisting of 100 male students and 100 female students with ages ranging from 18-21 years. This research uses a correlation test to prove the hypothesis. The results of this research show that there is a positive relationship between intrinsic and extrinsic motivation and learning achievement and that there are indeed differences between genders in terms of motivation and learning achievement.

Because motivation is often found to be a very important factor influencing learning achievement, various studies including Javadizadeh, Aplin-Houtz, and Casile (2022) have sought ways to improve motivation. With high uncertainty in the future and changes in learning methods during the pandemic, how to motivate students to learn is very important. Therefore, this research aims to see the influence of Rock's SCARF (Status, Certainty, Autonomy, Relatedness, fairness) or Status, Certainty, Autonomy, Relatedness,

and Justice. model in examining the relationship between class structure characteristics, teaching methods, motivating classroom atmosphere, and student learning achievement. This research used 345 students from 11 business schools in America. The results of this research show that the SCARF method is effective in achieving the intended objectives.

The Relationship between Social Media Use and Learning Achievement

Research regarding the relationship between social media use and learning achievement is still limited. Hosen, et al. (2021) researched to see the relationship between individual motivation and the influence of social media on learning achievement and students' ability to share knowledge based on social cognitive theory and connection theory. This research collected data from 407 students in Malaysia and then analyzed using covariance-based structural equation modeling (CB-SEM). The results of this research show that social media and individual motivation can be used as factors in improving student learning achievement and their ability to share knowledge. However, the use of social media in this research is more emphasized as supporting infrastructure for teaching and learning, such as for sharing teaching documents and also for independent learning via YouTube and so on. Meanwhile, how social media facilitates social support in teaching and learning, either from teachers to students, or fellow students through online learning together, has not yet been tested further.

Other research on the influence of social media and learning achievement is research conducted by Al-Rahmi, et al. (2022). This research aims to test whether or not social media influences academic achievement and helpful behavior or student citizenship behavior. This research uses a survey approach involving 231 business students at the State University of Lesotho. The results of the survey were tested using the Structural Equation Model approach. This research did not find a significant relationship between social media use and academic achievement. However, social media use influences helpful behavior, and this behavior has a positive and significant impact on student academic achievement. However, the use of social media in this research does not focus on the function of social media as a supporting infrastructure. However, the results of this research also mean that using social media to help others, such as providing social support, can also improve learning achievement.

Method

Research design

This research aims to re-examine the influence of motivation on academic achievement, specifically to confirm whether extrinsic or intrinsic motivation influences academic achievement more. Apart from that, this research also aims to test the benefits of using social media as a supporting infrastructure and as a means of getting social support in improving learning achievement. This research uses a quantitative approach by collecting data through questionnaires. S. K., & Given Lisa M. (2008)

Data source

The data collection technique uses simple random. The population in this study is junior high school students in Jakarta. The sample in this study was 327 junior high school students in Jakarta.Data will be collected using a questionnaire survey method via the Google Forms website. Then, this research was carried out starting from June to July 2022.

Measuring instrument

The Learning Achievement variable is represented by questions related to the condition of students' grades during the pandemic using a retrospective approach commonly used in quasi-experimental research (Rulindo; 2006). The use of social media as infrastructure support and social support was prepared by modifying the variables used by Hosel et al (2021) with various adjustments. Meanwhile, to measure sources of motivation, the scale used is the Academic Motivation Scale compiled by Utvaer and Haugan (2006).

The retrospective approach is used as a proxy for learning achievement because of the difficulty in collecting comparative data on student learning achievement before and after the pandemic. This approach has a weakness in that it contains bias. For this reason, the data that has been collected must go through a reliability test first before being used as a research variable. Reliability tests were also carried out on other variables such as motivation, as well as the use of social media as infrastructure support and social support.

Validity and reliability tests were measured using the Statistical Package for The Social Science (SPSS) measured using the Cronbach's alpha value of 0.70 or more, then the research instrument is considered valid and reliable. Based on the result, all measuring

instruments used in this research have been tested for reliability with reliable measuring instruments, namely learning achievement 0.7 Cronbach alpha, intrinsic motivation 0.9 Cronbach alpha, external motivation 0.9, technology as infrastructure support 0.7 Cronbach alpha, technology as social support 0.7 Cronbach alpha.

Data analysis technique

This research uses a quantitative approach using a regression method with a cross-sectional approach. The research model is as follows:

$$PB=\beta_0+ \beta_1 MI + \beta_2 ME+\beta_3 DI+\beta_4 DS +\beta_5 GD+ [\![\beta_6 SK+ \varepsilon]\!]_{(i,t)}$$

Where:

PB: Learning Achievement

MI: Intrinsic Motivation

ME: Extrinsic Motivation

DI: Infrastructure Support

DS: Social Support

GD: Gender

SK: Home School

Gender and school of origin are used as control variables which are expected to help explain the influence of the pandemic on learning achievement.

Result

This chapter provides information about the results of the research that has been carried out. Table 1 provides information about the respondents from this study. Overall, 327 junior high school students were research respondents with 36 students being students from Cikal Middle School, both from Cikal Amri Middle School, Cikal Serpong Middle School, and Cikal Lebak Bulus Middle School. Meanwhile, the gender composition of the respondents in this study is almost balanced. 150 respondents to this study were men while the other 141 were women.

Table 1. Respondent Profile

| | | Gender | | Total |
		Male	Female	
School	Other schools	150	141	291
	Cikal Middle School	15	21	36
Total		165	162	327

Table 2 provides information about descriptive statistics describing respondents' answers. Based on this table, the average score of student learning achievement is 10.5 with a maximum score of 15 and a minimum score of 3. For sources of motivation, students generally have higher external motivation with an average score of 51.25 for external motivation and 48.18 for internal motivation, with a maximum score of 60. On the other hand, more students feel they use social media as social support compared to infrastructure support, although the difference is not that big. The average value for using social media as a supporting infrastructure is 11.70, while as a medium for receiving social support, it is 12.23, with a maximum value of 15 for each.

Table 2. Descriptive Statistics

	Mark	Minimum	Maksimum	Rata-rata	Standard Deviasi
PB	327	3	15	10.55	2.987
MI	327	17	60	48.18	8.489
ME	327	15	60	51.25	8.059
DI	327	3	15	11.70	2.520
DS	327	3	15	12.23	2.523

Table 3 provides information regarding relationship tests between variables or correlation tests. This correlation test is necessary to ensure that the variables used do not represent the same conditions so that you can be sure that what is being measured is something truly different. Based on the information in Table 3, there are no variables that have autocorrelation, i.e. have a high level of correlation with each other (with a value of 0.8). Thus, all variables used can be used for the next testing stage.

Table 3. Correlation Test

		PB	MI	ME	DI	DS	Gender	School
Korelasi Pearson	PB	1.000						
	MI	.363	1.000					
	ME	.200	.706	1.000				
	DI	.237	.403	.373	1.000			
	DS	.313	.457	.414	.633	1.000		
	Jenis Kelamin	.099	.225	.266	.117	.153	1.000	
	Sekolah	.083	-.081	-.062	-.005	.046	.062	1.000

Table 4 summarizes the results of the hypothesis testing. The first hypothesis posited that intrinsic motivation would significantly predict learning achievement. The analysis revealed a significant positive relationship, with an unstandardized coefficient (B) of 0.135, t(198) = 5.150, p < .001. This indicates that higher levels of intrinsic motivation are associated with higher learning achievement, thus supporting Hypothesis 1. The second hypothesis examined the impact of extrinsic motivation on learning achievement. The results indicated a significant negative relationship, with B = -0.057, t (198) = -2.090, p = .037. This suggests that increased extrinsic motivation is associated with lower learning achievement, providing support for Hypothesis 2. The third hypothesis proposed that the use of social media as infrastructure would positively influence learning achievement. However, the results showed no significant effect, with B = 0.031, t (198) = 0.399, p = .690. Therefore, Hypothesis 3 was not supported. The fourth hypothesis suggested that social media use for social support would positively influence learning achievement. The findings supported this hypothesis, with B = 0.209, t (198) = 2.567, p = .011, indicating that social support through social media is positively related to learning achievement. Finally, the fifth hypothesis examined the relationship between gender and academic achievement. The results indicated no significant influence, with B = 0.103, t (198) = 0.328, p = .743, leading to the rejection of Hypothesis 5.

In conclusion, intrinsic motivation and social media use for social support were found to significantly influence learning achievement, while extrinsic motivation, social media use as infrastructure, and gender did not show significant effects.

Table 4. Hypothesis test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.874	1.083		3.575	.000
MI	.135	.026	.384	5.150	.000
ME	-.057	.027	-.153	-2.090	.037
DI	.031	.079	.027	.399	.690
DS	.209	.081	.177	2.567	.011
Gender	.103	.315	.017	.328	.743
Sekolah	.910	.488	.096	1.866	.063

Dependent Variable: Prestasi Belajar

Overall, the regression model used to assess the factors influencing learning achievement demonstrated a satisfactory fit, with an R square value of .18. This indicates that the model accounts for 18% of the variance in learning achievement, suggesting that additional factors may also contribute to enhancing the academic performance of junior high school students during the pandemic.

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.424[a]	.180	.165	2.730

a. Predictors: (Constant), MI, ME, Gender, Sekolah, IS, SS

Discussion

The study's findings the first hypothesis in this research is that intrinsic motivation influences learning achievement during the pandemic. The results of the research show that intrinsic motivation has a significant influence on learning achievement. The first hypothesis is supported. This is by previous research which also found that motivation can improve learning achievement (Mahande et.al 2021; Tan 2021). The results of this research strengthen the statement of the importance of continuing to build intrinsic motivation in students, namely motivation that arises from oneself autonomously and does not arise due to external factors or external regulations. Intrinsic motivation can continue to be built not by giving punishments or rewards but by continuing to discuss the importance of doing the best and providing examples and support so that students can continue to develop their maximum potential.

The second hypothesis in this research is that extrinsic motivation influences

learning achievement during the pandemic. The second hypothesis is supported. This is by previous research, but there are inconsistencies with previous research where Raccanello et al (2022) stated that extrinsic motivation has a greater influence than intrinsic motivation on learning achievement during the pandemic. In this study, the contribution of intrinsic motivation is greater when compared with extrinsic motivation.

Based on the information from Table 4, motivation, both internal motivation and external motivation, has a significant influence on learning achievement. However, internal motivation has a significant and positive influence. This means that the higher the level of internal motivation, the more likely it is that learning achievement during the pandemic will be the same or better than before the pandemic. On the other hand, external motivation has a significant and negative influence. This means that the higher a student's motivation is influenced by external factors, the lower the possibility of their learning achievement being the same and even more so during the pandemic. This means that their achievements may tend to decline due to the need to study online during the COVID-19 pandemic.

The third hypothesis in this research is the use of social media as a supporting infrastructure to influence learning achievement during the pandemic. This is in line with previous research which states that the use of technology can improve learning achievement during the pandemic (Pasion, 2020). However, based on information from Table 4, the results of the research show that although social media as a supporting infrastructure has a slight positive influence on learning achievement, this influence is not significant.

The fourth hypothesis in this research is that the use of social media as a means of getting social support influences learning achievement during the pandemic. The results of the research show that the use of social media to get social support in the teaching and learning process during the pandemic has quite a large and significant influence. The fourth hypothesis is supported. This is consistent with previous research where the use of social media as a means of getting social support influences learning achievement during the pandemic (Hosen, 2021).

On the other hand, there is no significant influence between gender and academic achievement, while school origin has a large influence but is not statistically significant.

Conclusion

Based on the results of the research that has been conducted, it can be concluded that the source of motivation has a positive influence on their learning achievement during the pandemic. This means that the possibility of their performance remaining good or improving during the pandemic is also higher. On the other hand, motivation that comes from external parties has a negative influence on learning achievement. This is normal because being independent at home makes the atmosphere gloomy and lonely. The data results show that most of the respondents are extroverts. As a result, most of them cannot study at home alone.

On the other hand, the use of social media to get social support in the teaching and learning process, such as active interaction with teachers, as well as group discussions and mutual learning between fellow students, also has a positive influence on learning achievement during the pandemic. These results provide a different picture regarding social media, which is often portrayed negatively, and learning achievement in general. Because, in the end, something depends on the purpose for which it is used. If it is used for something that is not useful, then the results will be negative. However, if it is used for something useful, of course, the results will also be positive.

The results of this research can be used by schools and students to improve the students' achievements. Schools need to help students to generate internal motivation and encourage more targeted use of social media so that it can bring more optimal benefits.

The findings of this study build upon the research conducted by Hidayati (2022), which identified "Best Practice" standards for enhancing motivation and science learning outcomes through the use of "Selfvi" (Self Video) media at SMP Negeri 1 Slogohimo during the 2021/2022 academic year. Hidayati's research demonstrated that the implementation of "Selfvi" significantly improved both student motivation and science learning outcomes at the institution. The integration of "Selfvi" media effectively reduced student boredom during Distance Learning, thereby fostering a more engaging and interactive learning environment.

However, there are still various factors that might influence learning achievement during the pandemic. Therefore, further research can look for these factors so that the

results can be used by schools to develop effective learning programs, especially when a situation occurs where students have to study online in the future. Apart from that, further research can also carry out tests to find out which programs are most effective in increasing internal motivation. This is important so that the program can be used by schools to ensure that students' learning achievements are maintained even though they have to carry out the teaching and learning process online at home.

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