



THE EFFECT OF PARENTAL SUPPORT AND DISCIPLINE LEVEL ON STUDY HABITS AND ITS IMPLICATIONS ON MATHEMATICS LEARNING OUTCOMES OF JUNIOR HIGH SCHOOL STUDENTS

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Abstract: The low mathematics learning outcomes of students in Indonesia are influenced by several factors, such as parental support, the level of discipline, and student study habits that still need to be improved. The purpose of this study is to examine the direct effect of parental support and discipline on study habits, the direct effect of the three variables on learning outcomes, and the indirect effect of parental support and discipline on learning outcomes through study habits. This research method is quantitative with a correlational design. The research subjects were 100 students in grades VII and VIII in one of the junior high schools in Purwodadi Regency from a total population of 150 students. Data collection techniques used questionnaires to measure parental support, discipline, and study habits, as well as math tests for learning outcomes. Data were analysed using path analysis with SPSS version 16, preceded by prerequisite tests (normality, linearity, multicollinearity, heteroscedasticity). The results showed that parental support and discipline had a significant effect on study habits (70% contribution), with discipline as the dominant factor. Only the level of discipline has a significant direct effect on learning outcomes (8.3% contribution). Parental support has a significant indirect effect on learning outcomes through study habits. Discipline is the main internal factor affecting learning habits and learning outcomes.

Keywords: level of discipline; learning outcomes; parental support; study habits

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Introduction

Learning outcomes are a major part of the success of the learning process. This proves that there is an understanding and mastery of student competence in receiving learning materials. According to UNESCO (2023), good learning outcomes not only determine student graduation but also become the foundation for their readiness to enter the next level of education. Students with good learning outcomes tend to have good analytical, problem-solving, and basic literacy skills (OECD, 2023). In addition, Utami *et al.* (2024) state that good learning outcomes contribute to increased student confidence and motivation to learn. According to Saihu (2020), student learning outcomes are one of the benchmarks of success in education. Differences in learning outcomes arise due to the diversity of intelligence and cognitive abilities of students, but in reality are caused by other factors such as learning ability, learning



motivation, learning habits, attitudes in learning, and student learning behavior (Awang & Sinnadurai, 2011; Hassanbeigi *et al.*, 2011; Fazal *et al.*, 2012).

However, the reality on the ground shows that student math learning outcomes in Indonesia are still at a low level. The results of international assessments, such as the Program for International Student Assessment (PISA) in 2022, showed that the average mathematics score of Indonesian students only reached 366, far below the OECD country average of 472 (OECD, 2023b). This fact reflects the low ability of students to apply mathematics in various real-life contexts. One of the efforts that needs to be developed to deal with this situation is student learning habits. Learning habits are ways or techniques that remain with students when receiving lessons, reading books, doing assignments, and managing time to complete activities (Djaali, 2013). Budiana *et al.* (2020) and Hidayat (2017) added that effective study habits are needed by each individual in their learning activities, because they greatly affect understanding and learning outcomes. Furthermore, learning habits are also influenced by active parental support during the child's education process, both as a facilitator, motivator and guide for children to help children's education effectively (Aprilia, 2018). On the other hand, the level of student discipline is also a factor that affects students' study habits (Sugiarto *et al.*, 2019). In line with the opinion of Sulistiyo (2023) that parental support and the level of student discipline are also very influential.

Parental support plays a crucial role in shaping students' learning habits, especially through providing motivation, resources, and consistent assistance (Hoover *et al.*, 2005). According to Ishomudin (2023), parental involvement in learning, such as monitoring school assignments, creating a conducive learning environment, and giving appreciation for children's efforts, can increase students' sense of responsibility, commitment to the learning process and learning outcomes. In addition, children need parents to support and guide them to obtain maximum learning outcomes (Amseke, 2018; Mashlihah & Hasyim, 2019; Wasistha & Rikayanti, 2024). In the world of education, parental encouragement is related to one's attitude and motivation to learn (Wahidin, 2019). Where responsive parents encourage learning discipline, the discipline that is formed makes it easier for parents to assist as desired (Fasikhah & Fatimah, 2013). The attitude of discipline in learning and external support from parents is a synergy that will create a positive cycle for students (Pitriani, 2020).

Discipline is the compliance of all students to carry out learning obligations consciously so that changes are obtained in themselves, both in the form of knowledge, actions and good attitudes (Djamarah, 2002). Ningsih & Sari (2022) added that learning discipline is a student's mental attitude that reflects a sense of obedience, compliance, supported by awareness to carry out their learning tasks and obligations to achieve satisfactory results. Disciplined students who carry out their learning activities regularly due to their awareness without coercion from other parties will have an impact on their learning habits (Sobri & Moerdiyanto, 2014). In addition, students who have a regular level of learning discipline will realise that learning is not a compulsion, but a form of self-effort in achieving learning goals and good learning outcomes (Siregar & Syaputra, 2022). According to Alimaun (2015) states that learning outcomes have a very close relationship with study habits, while the success of the habit itself depends on the student's ability to create or uphold discipline.

Research relevant to this study has been conducted previously. Some of them are by 1) Ishomudin (2023) regarding the effect of learning discipline and peer environment on student learning outcomes, 2) Kristin & Sari (2019) regarding the effect of learning discipline on student learning outcomes, 3) Budiana *et al.* (2020) discuss the effect of study habits on math learning outcomes, 4) Pramujono (2014) examines the effect of personality and student discipline on math learning outcomes, 5) Rosalina & Yamlean (2021) regarding the effect of parental support on student learning achievement, 6) Jonatan *et al.* (2025) regarding the effect of student self-management on math learning outcomes. However, no research specifically examines the simultaneous relationship between parental support and discipline level on study habits and their implications for students' mathematics learning outcomes. In addition, the approach used in previous studies is generally limited to simple or multiple regression analysis,

while this study uses path analysis to describe the direct and indirect relationships between variables in more depth. Therefore, further studies are needed that specifically examine the relationship between parental support and discipline level to study habits and their implications for students' mathematics learning outcomes. This research is important because it can provide a more comprehensive understanding of the factors that influence study habits and how these habits impact student math learning outcomes.

Based on the description above, the objectives of this study are threefold. First, to examine the direct effect of parental support and discipline level on students' study habits. Second, to examine the direct effect of parental support, discipline level, and study habits on student learning outcomes. Third, to examine the indirect effect of parental support and discipline level on learning outcomes through students' study habits. Based on the previous explanation, there are three hypotheses in this study. First, there is a direct influence of parental support and discipline level on students' study habits. Second, there is a direct effect of parental support, discipline level, and study habits on student learning outcomes. Third, there is an indirect effect of parental support and discipline level on learning outcomes through students' study habits.

Method

The research in this study adopted a quantitative approach using a correlational research design. The correlational design aims to identify the relationship between two or more variables by not manipulating these variables (Sutama *et al.*, 2022). In this study, a correlational design was used to identify the relationship between parental support and discipline level with study habits and student math learning outcomes. There are three variables in this study: 1) exogenous variables (parental support (X1) and discipline level (X2)), 2) intervening variables (study habits (Y)), and 3) endogenous variables (learning outcomes (Z)).

The population of this study were all students in grades VII and VIII in one of the Junior High Schools in Purwodadi Regency, consisting of 150 students. The sample of this study was 100 respondents. Data collection was carried out after obtaining permission from the relevant parties and explaining to students the purpose of the study, as well as maintaining the anonymity and confidentiality of their answers. Furthermore, data collection was carried out using questionnaire instruments and math problem tests. Questionnaires were used to measure parental support, discipline level, and students' study habits, while test questions were used to measure students' learning outcomes. All instruments were tested for validity and reliability before being used for data collection.

Data analysis used path analysis with the help of SPSS version 16 software to test the causal relationship model between parental support, discipline level, and study habits on mathematics learning outcomes. Before conducting path analysis, a series of prerequisite tests will be conducted to ensure statistical assumptions are met. These prerequisite tests include a normality test, a linearity test, a multicollinearity test, and a heteroscedasticity test (Pallant, 2020). The path diagram illustrating the estimated model of the causal relationship between parental support, discipline level, study habits, and math learning outcomes is shown in Figure 1.

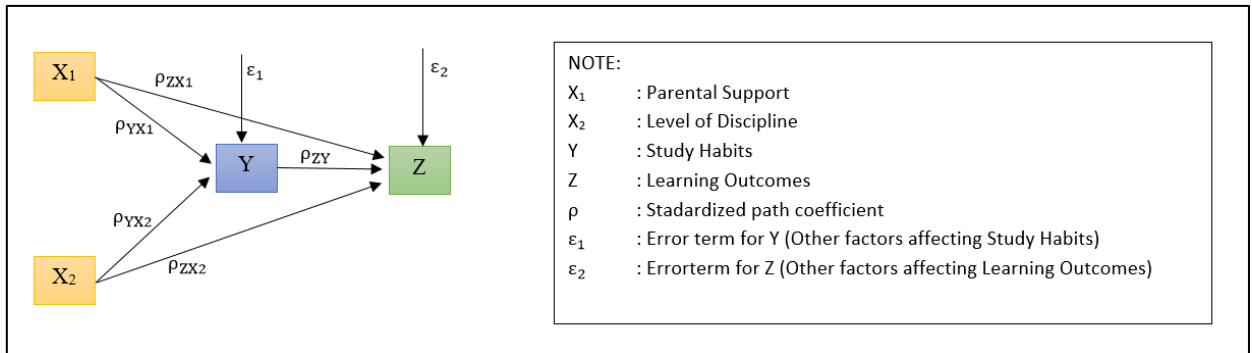


Figure 1. Path Diagram

Based on Figure 1, two structural equation models are obtained as follows.

- Model I
$$Y = \rho_{YX1}X_1 + \rho_{YX2}X_2 + \varepsilon_1$$
- Model II
$$Z = \rho_{ZX1}X_1 + \rho_{ZX2}X_2 + \rho_{ZYY} + \varepsilon_2$$

Results and Discussion

Prerequisite Test

Table 1. Normality Test of Model I and Model II

Model	Model	Unstandardized Residual
Model I	Asymptotic Significance (2-tailed)	0.433
Model II	Asymptotic Significance (2-tailed)	0.496

Table 1 shows the results of the normality test on Models I and II using the One-Sample Kolmogorov-Smirnov test. For Model I, the α significance value (Sig.) of 0.433 is obtained, which is greater than $\alpha = 0.05$. While Model II obtained a significance value (Sig.) of 0.496, which is greater than $\alpha = 0.05$. Thus, it can be concluded that the data is normally distributed.

Table 2. Linearity Test of Model I and Model II

Model	Linearity	Dependent-Independent Variable Pairs	Significance
Model I	Deviation for Linearity	Study Habits*Parental Support	0.062
		Study Habits* Level of Discipline	0.636
		Learning Outcomes* Parental Support	0.604
Model II	Deviation for Linearity	Learning Outcomes* Level of Discipline	0.355
		Learning Outcomes* Study Habits	0.606

Table 2 presents the results of the linearity test in Model I and Model II. The results show that for each pair of independent variables in Model I, with study habits as the dependent variable, the significance value (Sig.) in Deviation from Linearity is greater than $\alpha = 0.05$. Similarly, for each pair of independent variables in Model II, with learning outcomes as the dependent variable, the significance value (Sig.) in Deviation from Linearity is greater than $\alpha = 0.05$. This indicates that the relationship between each independent variable and the dependent variable in both Models is linear.

Table 3. Multicollinearity Test Model II

Model	Variable	Tolerance	VIF
Model I	Parental Support	0.548	1.825
	Level of Discipline	0.548	1.825
Model II	Parental Support	0.522	1.915
	Level of Discipline	0.282	3.543
	Study Habits	0.300	3.338

Table 3 displays the multicollinearity test results in Model I and Model II. In both models, it can be seen that all independent variables have a Tolerance value > 0.1 and VIF < 10 . Thus, it can be

concluded that there are no symptoms of multicollinearity, or there is no high correlation between independent variables in both models.

Table 4. Heteroskedasticity Test Model I and Model II

Model	Variable	Significance
Model I	Parental Support	0.611
	Level of Discipline	0.202
Model II	Parental Support	0.208
	Level of Discipline	0.327
	Study Habits	0.738

Table 4 shows the results of the heteroscedasticity test in Model I and Model II. In both models, it is found that all independent variables have a significance value (Sig.) greater than $\alpha = 0.05$. This means that there are no symptoms of heteroscedasticity, or the residual variance of the model is homogeneous (consistent) in both models.

Hypothesis Test

In testing the hypothesis, it is first necessary to determine the magnitude of the path coefficient in each structural model. For this purpose, linear regression tests were conducted on Model I and Model II. The results of the linear regression test for Model I are presented in Table 5.

Table 5. Linear Regression Test Model I

Variable Eksogen	Standardized Coefficients Beta	R ²	Significance
Parental Support	0.165	0.700	0.031
Level of Discipline	0.717		0.000

Based on Table 5, the path coefficient value of each variable is obtained, namely $\rho_{YX1} = 0.165$ and $\rho_{YX2} = 0.717$. The residual error value (ε_1) is calculated using the formula $\sqrt{1 - R^2}$, and is obtained as 0.547. In addition, each path coefficient has a significance value (Sig.) that is smaller than $\alpha = 0.05$, so it can be concluded that all paths in Model I are significant. Thus, a path diagram for Model I can be constructed as shown in Figure 2. In addition, the structural equation of Model I is formulated as $Y = 0.165X_1 + 0.717X_2 + 0.547$.

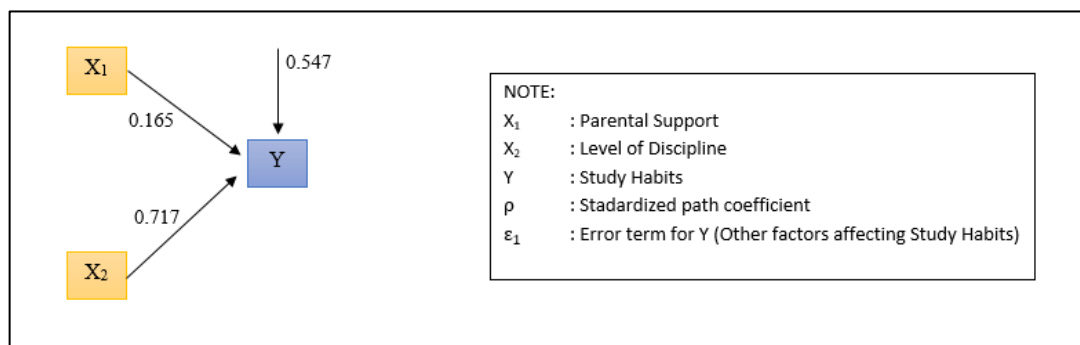


Figure 2. Diagram of Model I

First Hypothesis:

H₀: There is no direct effect of parental support and discipline level on students' study habits.

H_a: There is a direct effect of parental support and discipline level on students' study habits.

Based on Table 5, the significance value for the parental support variable is $0.031 < \alpha = 0.05$, and the level of discipline is $0.000 < \alpha = 0.05$. Since all significance values are smaller than the significance level (α), H₀ is rejected for each variable. Thus, it can be concluded that directly there is a significant influence of parental support and level of discipline on study habits. In addition, the R Square value is obtained at 0.700, which means that the parental support variable and the level of discipline contribute 70% to study habits, while 30% is the contribution of other variables outside the study. Level of discipline is the variable that has the greatest influence on study habits, as indicated by the path coefficient value $\rho_{YX2} = 0.717$. This is in line with research conducted by Kurniasari & Yarmi (2023),

which shows that the level of discipline plays a central role in encouraging study habits and has an impact on achieving more optimal student learning outcomes. In addition, parental support also has a significant direct effect, and this is by the opinion of Rosalina & Yamlean (2021) that students who get parental support can get better learning outcomes; on the contrary, if parental support is low, the learning outcomes obtained by students are also low.

Furthermore, the results of the linear regression test for Model II are shown in Table 6. Based on Table 6, the path coefficient value of each variable is obtained, namely $\rho_{ZX1} = -0.181$, $\rho_{ZX2} = 0.478$, and $\rho_{ZY} = -0.152$. The residual error value (ϵ_2) is calculated using the formula $\sqrt{1 - R^2}$, and is obtained as 0.9576. Then, the path coefficient that has a significance value (Sig.) less than $\alpha = 0.05$ is only the level of discipline. Therefore, the path for level of discipline is significant to learning outcomes. Meanwhile, parental support and study habits have Sig. Values that are more than the significance limit, namely 0.185 and 0.397. Thus, the paths for parental support and study habits are not significant to learning outcomes.

Table 6. Linear Regression Test Model II

Variable Eksogen	Standardized Coefficients Beta	R ²	Significance
Parental Support	-0.181	0.083	0.185
Level of Discipline	0.478		0.011
Study Habist	-0.152		0.397

Therefore, it can be concluded that only one path in Model II is statistically significant, namely level of discipline. In addition, the structural equation of Model II is formulated as $Z = -0.181X_1 + 0.478X_2 - 0.152Y + 0.957$.

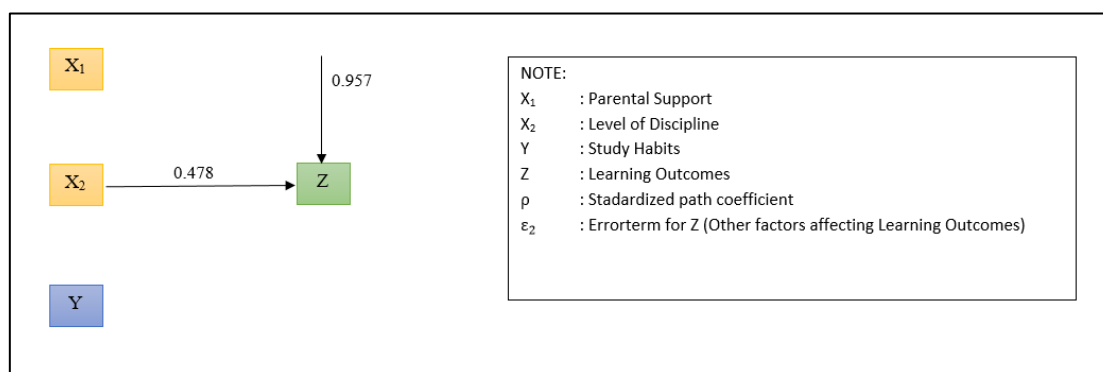


Figure 3. Diagram of Model II

Second Hypothesis:

- H₀: There is no direct effect of parental support, discipline level, and study habits on math learning outcomes.
- H_a: There is a direct effect of parental support, discipline level, and study habits on math learning outcomes.

Based on Table 6, the significance value for parental support is $0.185 > \alpha = 0.05$, discipline level is $0.011 < \alpha$, and study habit is $0.397 > \alpha = 0.05$. Because the discipline level has a significance value less than α , H₀ is rejected for the discipline level variable. Thus, there is a significant direct effect of discipline level on student learning outcomes. In line with the research of Ratana & Kaluge (2022), it shows that the level of discipline directly affects learning outcomes; in other words, the higher the level of discipline, the higher the student's learning outcomes.

Meanwhile, because the significance value of parental support and study habits is more than α , H₀ is accepted. Thus, there is no significant direct effect of parental support and study habits on student learning outcomes. The reason students do not get parental support in learning mathematics is that students do not understand the question points in the parental support questionnaire, lack parental

attention to student learning, and have limited provision of learning resources. This is in line with research conducted by Prasetyo *et al.* (2023), which shows that parental support does not always result in a significant increase in learning outcomes. This can be interpreted as a gap in applying parental support in line with student learning outcomes. Furthermore, the R Square value obtained is 0.083, which means that the level of discipline simultaneously contributes 8.3% to student learning achievement, while 91.7% is the contribution of other variables outside the study.

Third Hypothesis:

- H_0 : There is no indirect effect of parental support and discipline level on learning outcomes through study habits..
- H_a : There is an indirect effect of parental support and discipline level on learning outcomes through study habits.

Based on Table 6, the path coefficient of parental support on learning outcomes is -0.181, which indicates a direct effect. Then, the indirect effect of parental support on learning outcomes is determined from $\rho_{YX1} \times \rho_{ZY}$. Thus, the magnitude of the indirect effect is -0.02508. It can be understood that the magnitude of the indirect effect is greater than the direct effect, so H_0 is rejected. This means that there is an indirect effect of parental support on learning outcomes through study habits. This shows that learning habits become a mediator between parental support and learning outcomes. In line with research by Likoko *et al.* (2021) shows that the mediating role of student study habits in the relationship between parental support at the secondary school level results in high parental involvement tends to encourage better study habits, which are then positively correlated with student learning outcomes.

Furthermore, the direct effect of discipline level on learning outcomes is 0.478. Meanwhile, the indirect effect of discipline level on learning outcomes is $\rho_{YX2} \times \rho_{ZY} = -0.108984$. It can be understood that the magnitude of the indirect effect is smaller than the direct effect, so that H_0 is accepted. Thus, there is no indirect effect of discipline level on learning outcomes through study habits. The results of this study are supported by the results of research by Mashudi & Amanah (2022), which concluded that the correlation coefficient shown is positive, meaning that the better the level of student discipline, the better the learning outcomes obtained.

Conclusion

Student discipline level is the most consistent and significant factor contributing to study habits and learning outcomes. Study habits serve as a relevant mediator, especially in bridging parental support and students' academic achievement. The results showed that parental support and discipline level had a significant direct effect on students' study habits, with a 70% contribution to the variable. The level of discipline is the most dominant factor in shaping study habits, as indicated by the highest path coefficient value. Furthermore, of the three variables in the second structural model, only the level of discipline has a significant direct effect on student learning outcomes, with a relatively low contribution of 8.3%. Nonetheless, this indicates that improving discipline can directly support academic achievement. On the other hand, it was found that parental support had a significant indirect effect on learning outcomes through study habits as a mediator. Meanwhile, there is no significant indirect effect of discipline level on learning outcomes through study habits, as the direct effect is stronger. This finding confirms the importance of discipline as a key internal factor that influences students' study habits and learning outcomes. In addition, study habits were shown to act as a strategic mediator in the relationship between parental support and academic achievement. Therefore, educational interventions that emphasise the formation of learning discipline and active and purposeful parental involvement are strongly recommended to support the improvement of students' learning achievement.

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