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Peer Influence, Student Ethics, And Learning Independence As Predictors Of Elementary Students' Academic Discipline In Science Education: Evidence From Indonesia

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Abstract

Academic discipline is a foundational condition for classroom learning, yet elementary teachers in many school systems report a decline in students' self-regulated conduct, prompting renewed attention to the social and dispositional habits that may underlie it. This study tested whether peer influence, student ethics, and learning independence jointly and individually predict fourth-grade students' discipline in science (IPAS) learning. Using an ex post facto, associative quantitative design, data were collected via Likert-scale questionnaires from all 38 fourth-grade students (saturated sampling) at a public elementary school and analyzed with multiple linear regression in IBM SPSS Statistics 26. All three predictors significantly and positively predicted learning discipline: peer influence (B = 0.328, t = 2.412, p = .021, standardized beta = .280), student ethics (B = 0.413, t = 2.375, p = .023, standardized beta = .271), and learning independence (B = 0.451, t = 5.355, p < .001, standardized beta = .527). Learning independence was the dominant predictor by both criteria. Together, the three variables significantly predicted learning discipline, F(3, 34) = 29.186, p < .001, explaining 72.0% of its variance (R-squared = .720; adjusted R-squared = .696). Diagnostic testing confirmed normally distributed residuals, no multicollinearity

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(tolerance > .61, VIF < 1.7 for all predictors), and no heteroscedasticity. The findings suggest that cultivating elementary students' learning discipline benefits from attention to peer relationships, ethical character, and self-regulated learning skills, not only classroom rule enforcement, with implications for character-education policy in comparable elementary school systems.

Keywords: Peer Influence; Student Ethics; Learning Independence; Academic Discipline; Character Education.

INTRODUCTION

Academic discipline -- students' consistent compliance with learning-related rules, schedules, and responsibilities -- is a foundational condition for classroom learning, yet elementary educators in many school systems report rising indifference to punctuality, assignment deadlines, and classroom norms among young learners. Much of the policy response to declining discipline has focused on rule enforcement and school administration (Purwanto, 2014), but a growing body of evidence suggests students' classroom conduct is also shaped by social and dispositional factors outside formal rule-setting, including the peer groups children spend increasing time with as they enter middle childhood (Santosa, 2006) and the everyday ethical habits and self-regulation skills they bring into the classroom (Yusuf, 2014).

At a public elementary school in a regency of South Sulawesi Province, Indonesia, preliminary observation among fourth-grade students found that five to ten students routinely arrived late to school, were frequently reprimanded for late homework submission, and displayed inattentive conduct during formal school ceremonies -- prompting concern about the factors underlying inconsistent learning discipline. Peer relationships are widely recognized as an influential social context for elementary-age children, who spend substantial time interacting with classmates during a developmental stage in which peer-group norms begin to shape daily habits and behavior (Desmita, 2017; Rusiana et al., 2021). This study therefore examined whether peer influence, student ethics, and learning independence -- individually and jointly -- predict fourth-grade students' discipline in science (IPAS) learning.

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LITERATURE REVIEW

Peer Relationships and Ethical Character

Peer influence in the elementary years is typically indexed through the situational and emotional dimensions of peer interaction: the shared decisions children make about joint activities, the closeness that creates a comfortable social environment, the problem-solving skills children develop through peer interaction, and the emotional support and growing independence peer relationships foster (Desmita, 2017). As children spend more time with classmates than with family during the school day, peer groups function as an agent of socialization that shapes students' daily habits, norms, and classroom conduct (Rusiana et al., 2021); prior classroom-based evidence links positive peer influence to improved learning discipline among elementary students (Hamzah, 2020). Ethical character, meanwhile, is commonly operationalized through everyday conduct such as honesty, respect toward parents and teachers, appreciation of others, and a willingness to defend fairness -- dispositions understood as an early, observable expression of students' broader moral development (Yusuf, 2014).

Learning Independence, Discipline, and Prior Findings

Learning independence is commonly indexed through students' willingness to take responsibility for their own decisions, exercise their rights and obligations without external prompting, complete tasks unassisted, and maintain confidence in their own academic judgment. Because independent learners are, by definition, less reliant on external supervision to stay on task, learning independence is theoretically expected to translate into more consistent rule-following and self-regulated classroom conduct, a relationship supported by evidence that learning discipline and academic independence are closely related constructs among elementary students (Nabila & Faisal, 2024). Beyond these three predictors, prior research on elementary-level discipline has identified additional contributing factors -- including family environment, school facilities, and classroom management practices -- underscoring that discipline is a multiply-determined outcome rather than the product of any single influence (Wahyuningsih et al., 2026).

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METHOD

Research Design and Participants

This study used an ex post facto, associative quantitative design (Widarto, 2013), examining relationships among variables as they naturally occurred rather than through experimental manipulation. Data were collected during the 2025/2026 odd semester at a public elementary school in a regency of South Sulawesi Province, Indonesia. The study population comprised all fourth-grade students at the school; because a saturated sampling technique was applied, all 38 students in the population served as the study sample.

Instruments and Data Analysis

Four closed-ended, five-point Likert questionnaires measured peer influence, student ethics, learning independence, and learning discipline (Yusuf, 2017). Item validity was assessed through Pearson product-moment item-total correlation against a critical value of .316 for n = 38 (Arikunto, 2005), with every item found valid, and reliability, assessed through Cronbach's alpha, likewise met the accepted threshold of .60 for all instruments (alpha = .662 for peer influence, .605 for student ethics, .824 for learning independence, and .791 for learning discipline; Sugiyono, 2019). Prior to hypothesis testing, classical assumption testing covered residual normality (One-Sample Kolmogorov-Smirnov test), multicollinearity (tolerance and VIF), and heteroscedasticity (visual inspection of the standardized residual scatterplot; Ghozali, 2019). Hypotheses were then tested through multiple linear regression, evaluated via the t-test for each predictor's partial effect, the F-test for the simultaneous effect, the coefficient of determination (R-squared), and comparison of standardized beta coefficients to identify the dominant predictor, all computed in IBM SPSS Statistics 26.

RESULTS AND DISCUSSION

Classical Assumption Testing

Residuals were normally distributed: Kolmogorov-Smirnov significance values exceeded .05 for all four variables (peer influence = .200, student ethics = .055, learning independence = .074, learning discipline = .066). Multicollinearity testing showed tolerance values of .612, .630, and .850 and VIF values of 1.634, 1.588, and 1.177 for peer influence, student ethics, and learning independence respectively, within the accepted thresholds (tolerance > .10, VIF < 10). The standardized residual scatterplot showed no systematic pattern, indicating no heteroscedasticity.

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Regression Results and Hypothesis Testing

Multiple linear regression, entering peer influence (X1), student ethics (X2), and learning independence (X3) simultaneously, is summarized in Table 1.

Table 1. Multiple Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	-9.853	3.101	-	-3.177	.003	-	-
Peer Influence (X1)	0.328	0.136	.280	2.412	.021	.612	1.634
Student Ethics (X2)	0.413	0.174	.271	2.375	.023	.630	1.588
Learning Independence (X3)	0.451	0.084	.527	5.355	<.001	.850	1.177

Table 2. Model Summary and Simultaneous (F) Test

R	R-squared	Adjusted R-squared	F	df	Sig.
.849	.720	.696	29.186	3, 34	<.001

All three predictors significantly and positively predicted learning discipline (X1: t = 2.412, p = .021; X2: t = 2.375, p = .023; X3: t = 5.355, p < .001), supporting the first three hypotheses. Comparing standardized beta coefficients -- the appropriate metric for ranking predictors measured on different item scales -- learning independence was the dominant predictor (beta = .527), followed by peer influence (beta = .280) and student ethics (beta = .271). Tested simultaneously, the three variables significantly predicted learning discipline, F(3, 34) = 29.186, p < .001 (Table 2), supporting the fourth hypothesis; the model explained 72.0% of the variance in learning discipline (R-squared = .720; adjusted R-squared = .696), leaving 28.0% attributable to factors outside the model.

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DISCUSSION

Peer influence's significant effect is consistent with the view that elementary-age peer groups function as an active agent of socialization, shaping students' daily habits and classroom conduct through shared activity, closeness, and mutual modelling of behavior (Rusiana et al., 2021).

Student ethics' significant contribution aligns with the understanding that everyday conduct such as honesty, respect for teachers, and fairness reflects the moral dispositions that make compliance with classroom norms feel intrinsically appropriate rather than merely externally imposed (Yusuf, 2014).

Learning independence's status as the dominant predictor is consistent with the reciprocal relationship documented between academic independence and learning discipline among elementary students: students who take ownership of their own decisions and tasks are, by the same disposition, less reliant on external supervision to remain compliant with classroom expectations (Nabila & Faisal, 2024). That all three predictors remained significant when entered jointly, together explaining 72% of the variance, supports treating them as complementary factors in learning discipline rather than as substitutable ones, consistent with evidence that discipline among elementary learners is shaped jointly by social, ethical, and self-regulatory habits rather than by a single dominant cause (Wahyuningsih et al., 2026).

CONCLUSION

This study found that peer influence, student ethics, and learning independence each significantly and positively predicted the academic discipline of fourth-grade students in science learning, both individually and jointly. Learning independence was the dominant predictor, followed by peer influence and student ethics, and the three variables together explained 72.0% of the variance in learning discipline. These findings support treating classroom discipline as a socially and dispositionally grounded outcome, with implications for character-education practice in comparable elementary school settings.

RECOMMENDATIONS

Schools and teachers are encouraged to complement rule-based discipline enforcement with structured peer-group activities, character-and-ethics instruction, and opportunities for students to practice independent decision-making in daily learning tasks. Future research should

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extend this design with larger, multi-school samples and longitudinal designs capable of testing whether habit formation causally precedes gains in learning discipline over time.

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