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School and Family Environment as Predictors of Students' Learning Interest in Rural Elementary Education

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Abstract: This study examines the influence of school environment and family environment on students' learning interest in a rural elementary school setting, where external motivational supports are often limited. A quantitative correlational design was employed at SD Negeri 01 Adu Manis, Semendawai Barat District, Ogan Komering Ulu Timur Regency, South Sumatra. The population comprised 97 students, with a sample of 47 students from grades III, IV, and V selected through proportional sampling. Data were collected using questionnaires, observation, and documentation. Instruments measured school environment, family environment, and learning interest, with data analyzed using simple and multiple linear regression via SPSS. Results – The school environment demonstrated a positive and significant influence on learning interest ($R^2 = 0.986$), as did the family environment ($R^2 = 0.833$). Simultaneously, both variables collectively explained 99.2% of the variance in learning interest ($R^2 = 0.992$), indicating an exceptionally strong predictive capacity. This study provides empirical evidence from an underexplored rural Indonesian context, demonstrating the near-total combined explanatory power of school and family environments on student engagement. Findings underscore the critical need for structured school-family partnership programs to sustain and enhance learning interest, particularly in geographically isolated areas. This research contributes actionable insights for educators and policymakers, affirming that synergistic investments in both school climate and parental involvement are indispensable for fostering student motivation and academic persistence in rural elementary education.

Keywords: Educational Management, Family Environment, Learning Interest, Rural Elementary School, School Environment

A. Introduction

Students' learning interest is a central issue in elementary education because it shapes students' willingness to pay attention, participate, complete tasks, and continue learning beyond formal classroom activities (Nuutila et al., 2020). At the elementary level, learning interest is not only a psychological preference but also a foundation for literacy, numeracy, discipline, confidence, and later academic persistence. When students show low interest in learning, classroom participation weakens, homework

completion becomes irregular, and the quality of interaction between students and teachers declines. This issue becomes more critical in rural elementary schools where students often face limited learning facilities, restricted access to digital resources, and different levels of parental support. Therefore, learning interest needs to be examined as a product of the interaction between students and their closest educational environments (Dahri et al., 2025).

The school environment is one of the most direct external factors influencing students' learning interest. It includes physical conditions, such as classrooms, learning media, school facilities, and cleanliness, as well as social and academic conditions, such as teacher-student relationships, peer relationships, school discipline, and classroom climate. A supportive school environment can help students feel safe, valued, and interested in participating in lessons. Conversely, an uncomfortable classroom, limited learning media, weak teacher-student interaction, or monotonous instruction may reduce students' curiosity and engagement. In elementary schools, the school environment is particularly influential because children spend a large part of their daily learning time in school and learn through direct interaction with teachers and peers (Correa et al., 2023).

In addition to the school environment, the family environment has an important role in shaping students' learning interest. Family is the first and most continuous educational environment for children. Through parental attention, learning habits at home, emotional support, communication, and supervision, families help children develop positive attitudes toward learning. Parents who provide time, encouragement, and a structured learning atmosphere can strengthen students' confidence and persistence. In contrast, limited parental involvement, weak communication, economic pressure, and lack of learning resources at home may reduce students' enthusiasm for school activities. This condition is especially relevant in rural communities where many parents work long hours and may have limited opportunities to accompany children's learning (Ahmed & Anna, 2021).

The interaction between school and family environments is important because students do not learn in one setting only. They bring experiences from home into the classroom and bring school experiences back into the family. A strong school environment may not be sufficient if students receive little support at home. Likewise, strong family support may be less effective if the school environment is not conducive. Bronfenbrenner's ecological systems perspective explains that child development is influenced by interconnected environmental systems. In this perspective, school and family are both part of the microsystem that has direct contact with children's everyday life. When these two environments support each other, students are more likely to develop sustained interest in learning (Wahyuni & Tin, 2026).

The thesis that forms the basis of this article examined this issue at SD Negeri 01 Adu Manis, Semendawai Barat District, Ogan Komering Ulu Timur Regency, South

Sumatra. Preliminary observations in the thesis indicated that several students showed low learning interest, including weak participation in classroom activities, limited consistency in completing homework, and irregular learning habits. The school context also reflected typical rural educational challenges, such as limited facilities, varying levels of parental involvement, and the need for stronger cooperation between school and family. These conditions make the research context relevant for understanding how school and family environments contribute to students' learning interest in rural elementary education (Yahaya et al., 2025).

Previous studies have examined the influence of school environment, parental attention, and learning motivation on student learning outcomes or interest. However, many studies tend to examine one environment separately, focus on urban schools, or use achievement as the main outcome. Fewer studies provide a focused quantitative explanation of how school environment and family environment simultaneously influence learning interest in a rural elementary school context (Chu et al., 2024). This article addresses that gap by converting the thesis findings into a journal article that emphasizes the statistical relationship between school environment, family environment, and students' learning interest. The article also highlights the practical meaning of the findings for educational management, especially the need to strengthen school-family cooperation.

Based on the research background, this study aims to analyze: (1) the influence of the school environment on students' learning interest; (2) the influence of the family environment on students' learning interest; and (3) the simultaneous influence of school and family environments on students' learning interest. The conceptual framework assumes that school environment and family environment function as independent variables that directly influence students' learning interest. In addition, both variables are assumed to have a simultaneous influence on students' learning interest when analyzed together. The conceptual framework of the study is presented in Figure 1.

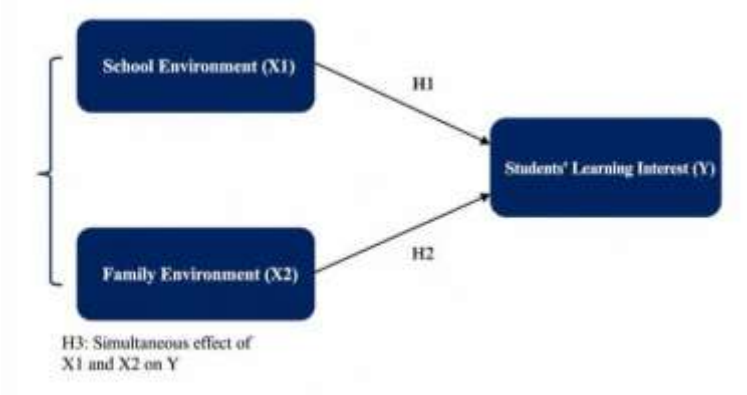

Figure 1. Conceptual Framework of the Study

B. Methods

This study used a quantitative method with a correlational design. This design was selected because the study aimed to examine the influence of school environment and family environment on students' learning interest. The independent variables were school environment (X1) and family environment (X2), while the dependent variable was students' learning interest (Y). A quantitative correlational design is appropriate for examining the strength and significance of relationships among variables without manipulating the research setting (Ibrahim, 2025). The study measured the existing conditions experienced by students and analyzed their statistical relationship with students' learning interest.

The research was conducted at SD Negeri 01 Adu Manis, Semendawai Barat District, Ogan Komering Ulu Timur Regency, South Sumatra, during the 2025/2026 academic year. The population consisted of 97 students from grades I to VI. The sample involved 47 students from grades III, IV, and V. These grade levels were selected because the students were considered able to understand and respond to questionnaire items more independently than lower-grade students. The sample consisted of 15 students from grade III, 17 students from grade IV, and 15 students from grade V. The sampling technique used was proportional sampling.

Data were collected through questionnaires, observation, and documentation. The questionnaire was the main instrument used to measure the three research variables. The school environment questionnaire measured curriculum, teacher-student relationships, peer relationships, school discipline, learning facilities, and school climate. The family environment questionnaire measured parental attention, home learning habits, parenting practices, family communication, emotional support, and learning facilities at home. The students' learning interest questionnaire measured attention, enjoyment, active participation, persistence, willingness to learn, and task completion. These indicators were used to represent students' learning interest as reflected in attention, enjoyment, participation, persistence, and willingness to complete learning tasks (Alawad & Merghani, 2026). Each questionnaire consisted of 30 statement items using a five-point Likert scale. Before the data were analyzed, the instruments were tested for validity and reliability. The validity test showed that all questionnaire items met the validity criteria because the calculated correlation values were higher than the r-table value. The reliability test showed that the instruments were reliable, with Cronbach's alpha values ranging from 0.929 to 0.968. Reliability testing is important to ensure that questionnaire instruments have adequate internal consistency in measuring the intended variables (Krousorati et al., 2022). These results indicated that the instruments were appropriate for measuring school environment, family environment, and students' learning interest.

The data were analyzed using SPSS. Before hypothesis testing, normality, linearity, and multicollinearity tests were conducted to ensure that the data met the

assumptions for regression analysis. The linearity test was conducted because regression analysis requires a linear relationship between the independent variables and the dependent variable (Khedidja, 2022). The hypotheses were tested using simple linear regression and multiple linear regression. Simple linear regression was used to examine the partial influence of school environment on students' learning interest and the partial influence of family environment on students' learning interest. Multiple linear regression was used to examine the simultaneous influence of school environment and family environment on students' learning interest. The analysis focused on correlation coefficients, coefficients of determination, regression equations, t-tests, and F-tests (Janse et al., 2021).

Table 1. Research variables and indicators

Variable	Role in the model	Main indicators
School environment (X1)	Independent variable	curriculum, teacher-student relationships, peer relationships, school discipline, learning facilities, school climate
Family environment (X2)	Independent variable	parental attention, home learning habits, parenting practices, family communication, emotional support, learning facilities at home
Students' learning interest (Y)	Dependent variable	attention, enjoyment, active participation, persistence, willingness to learn, task completion

C. Results and Discussion

The findings are organized into four parts: instrument quality, assumption testing, partial effects of each independent variable, and the simultaneous effect of school and family environments on students' learning interest (Q. Li et al., 2025). Overall, the thesis data show that both school environment and family environment had significant relationships with students' learning interest. The strongest statistical contribution was found in the school environment variable, while the family environment also showed a substantial influence when analyzed separately. The simultaneous model showed that the two variables together strongly predicted students' learning interest.

The validity test showed that the questionnaire items for school environment, family environment, and learning interest were suitable for research use (Sajko, 2024). All items were reported as valid because the calculated item correlation values exceeded the r table value. The reliability test also showed strong internal consistency. The Cronbach's alpha values were above the minimum standard and were categorized as reliable (Hayat, 2024). This means that the three instruments were sufficiently consistent in measuring the intended variables. In quantitative educational research, this stage is important because weak instruments may produce misleading regression results. The reliability results therefore strengthen the credibility of the statistical analysis in this study.

The assumption tests indicated that the data were appropriate for regression analysis. The normality test results were greater than 0.05, indicating that the data were normally distributed. The linearity test also showed that the relationships among variables were linear (Khedidja, 2022). These results mean that the use of linear regression was statistically acceptable. The thesis also included multicollinearity testing to ensure that the school environment and family environment variables could be used together in the regression model. Although the regression results showed a negative coefficient for the family environment in the simultaneous model, the bivariate relationship between family environment and learning interest remained positive and significant. Therefore, the negative coefficient in the multiple regression model should be interpreted carefully as a possible effect of predictor overlap in the combined model (Ziglari, 2024).

The first hypothesis tested the influence of the school environment on students' learning interest. The simple regression analysis showed a correlation coefficient (R) of 0.993. This indicates a very strong relationship between school environment and students' learning interest. The coefficient of determination (R^2) was 0.986, meaning that the school environment explained 98.6% of the variation in students' learning interest in the thesis model. The simple regression equation was Y = 2.362 + 1.259X1. The t-test showed that the calculated t value was 66.223, which was higher than the t table value. Therefore, the first hypothesis was accepted. These findings suggest that students' learning interest increases when the school environment becomes more supportive, orderly, interactive, and conducive to learning (Zaid, 2025).

The second hypothesis tested the influence of the family environment on students' learning interest. The analysis showed a correlation coefficient (R) of 0.912, indicating a very strong relationship. The coefficient of determination (R^2) was 0.833, which means that the family environment explained 83.3% of the variation in students' learning interest in the simple regression model. The regression equation was Y = -11.945 + 1.382X2. The t-test showed that the calculated t value was 17.554, which was higher than the t table value. Therefore, the second hypothesis was accepted. These findings confirm that parental attention, learning habits at home, emotional support, and family communication are important factors in strengthening students' interest in learning (Hernández-padilla et al., 2023).

The third hypothesis tested the simultaneous influence of school environment and family environment on students' learning interest. The multiple regression analysis showed a multiple correlation coefficient (R) of 0.996 and a coefficient of determination (R^2) of 0.992. This means that the two independent variables together explained 99.2% of the variation in students' learning interest in the thesis model, while 0.8% was explained by other factors outside the study. The multiple regression equation was Y = 10.338 + 1.533X1 - 0.346X2. The F-test showed an F value of 3669.879, which was higher than the F table value. Therefore, the third hypothesis was accepted. The result shows that students' learning interest is strongly associated with the

combined condition of school and family environments (Q. Li et al., 2025; Muhibbin et al., 2023).

The negative coefficient of the family environment in the simultaneous model does not automatically mean that the family environment reduces learning interest. This coefficient appeared while school environment and family environment were entered into the model together. In the simple regression model, family environment had a positive and significant influence. Therefore, the negative coefficient in the multiple regression equation may reflect statistical overlap or suppression between the two predictors. Substantively, the thesis conclusion remains that both school and family environments significantly influence students' learning interest. This point is important for journal reporting because regression coefficients should not be interpreted only mechanically (Ziglari, 2024). They must be connected to the overall statistical pattern and the theoretical relationship among variables.

Table 2 summarizes the major statistical findings of the study. The table shows that school environment, family environment, and their simultaneous model all had strong relationships with students' learning interest. These results support the ecological view that children develop learning interest through repeated interactions with their closest environments (Skalstad & Munkebye, 2022). School creates formal learning experiences, while family provides emotional, motivational, and behavioral support. When both environments work together, students are more likely to show attention, enjoyment, participation, and persistence in learning.

Table 2. Summary of statistical findings

Model	R	R2	Test statistic	Interpretation
School Environment (X1) → Students' Learning Interest (Y)	0.993	0.986	t = 66.223	positive and significant
Family Environment (X2) → Students' Learning Interest (Y)	0.912	0.833	t = 17.554	positive and significant
School Environment (X1) and Family Environment (X2) → Students' Learning Interest (Y)	0.996	0.992	F = 3669.879	simultaneously significant

Discussion

The findings of this study indicate that the school environment has a positive and significant influence on students' learning interest. This result is theoretically reasonable because the school is the main formal learning space where students interact with teachers, peers, learning materials, school rules, and learning facilities. A supportive school environment can help students feel comfortable, safe, and motivated to participate in learning activities. Good teacher-student relationships may increase students' confidence to ask questions and express opinions. Positive peer relationships can make classroom activities more enjoyable, while adequate facilities and learning media can make lessons more concrete and interesting. Therefore, the school environment should not be understood only as the physical condition of the

school building, but also as the overall learning climate that shapes students' daily learning experiences (Correa et al., 2023; Edgerton et al., 2026).

This finding is also consistent with the view that students' learning behavior is shaped by social interaction in the learning environment. In the classroom, teachers serve as learning facilitators and models of positive learning behavior. When teachers create active, communicative, and student-centered learning situations, students are more likely to show attention, enjoyment, and willingness to complete learning tasks. In contrast, monotonous instruction, weak classroom interaction, or unsupportive school conditions may reduce students' interest in learning. This is especially important in rural elementary schools, where students may have limited access to additional learning resources outside school. In such a context, the quality of the school environment becomes a major factor in strengthening students' learning interest (Jones et al., 2022; Yahaya et al., 2025).

The study also found that the family environment has a positive and significant influence on students' learning interest. This result confirms that children's interest in learning is not formed at school only. It is also developed at home through parental attention, learning habits, communication, emotional support, and learning facilities. Students who receive support from their families tend to have stronger confidence, better study routines, and greater motivation to participate in school activities. Simple forms of parental involvement, such as asking about schoolwork, reminding children to study, providing time for homework, and giving appreciation for effort, can help students develop positive attitudes toward learning (Hernández-padilla et al., 2023; Shebani et al., 2025).

The role of family environment is particularly relevant in rural communities. Many parents in rural areas have economic responsibilities that may limit the time available to directly accompany children's learning. However, parental involvement does not always have to be formal or intensive. Parents can still support learning through daily communication, emotional encouragement, supervision of study habits, and cooperation with teachers. These forms of support can make students feel that education is valued by their family. When children feel supported at home, they are more likely to show persistence, responsibility, and willingness to learn at school (Ahmed & Anna, 2021; Eker, 2026).

The simultaneous regression result shows that school environment and family environment together have a significant influence on students' learning interest. This finding supports the ecological perspective that children's development is shaped by the interaction of their closest environments. Students do not learn only in the classroom, and they do not develop learning habits only at home. They move between both environments every day. When school and family provide consistent support, students receive a stronger message that learning is important. A supportive school can strengthen classroom participation, while a supportive family can reinforce study

habits and motivation at home. Therefore, improving students' learning interest should not be treated only as the responsibility of teachers. It requires cooperation between school leaders, teachers, parents, and the surrounding community (Marah et al., 2025; Paccaud et al., 2021). However, the regression results also need to be interpreted carefully. The coefficient of determination values in this study are very high, especially the simultaneous model that explains 99.2% of the variance in students' learning interest. In educational research, very high R^2 values are uncommon and should not be interpreted too broadly. These values may reflect a very strong relationship in the local sample, but they may also be influenced by the small sample size, similar response patterns, or overlapping questionnaire items between environmental support and learning interest. Therefore, the findings support the hypotheses, but they should be understood within the specific context of SD Negeri 01 Adu Manis. Future studies should involve larger samples, more schools, and more diverse data sources to confirm the strength of the model (Janse et al., 2021).

Another important point is the negative coefficient of family environment in the multiple regression equation. In the simple regression model, family environment had a positive and significant influence on students' learning interest. However, when school environment and family environment were analyzed together, the coefficient of family environment became negative. This does not mean that family environment harms students' learning interest. Rather, it may indicate overlapping explanatory power between school environment and family environment. In other words, both variables may share similar aspects of learning support. Therefore, the result should be interpreted as a statistical issue in the combined model, not as evidence that family support is unimportant. Future research may use path analysis or structural equation modeling to examine the relationship between these variables more deeply (Payne-mann, 2025; Ziglari, 2024). This study differs from some previous studies that place internal student factors, such as motivation, self-confidence, learning style, and cognitive ability, as the main predictors of learning interest. The present study emphasizes environmental support as a major factor in shaping students' interest in learning. This difference may be explained by the rural school context. In rural elementary education, students may have fewer opportunities to access enrichment programs, private tutoring, digital resources, or varied learning experiences outside school. As a result, the school and family environments become more visible and influential in shaping students' learning interest. This does not mean that internal factors are unimportant. Rather, it shows that internal learning interest can be strengthened or weakened by the external environments surrounding students (Mohamed et al., 2023; Nguyen et al., 2025).

The findings have several implications for educational management. First, school principals need to treat the school environment as a strategic factor in improving students' learning interest. A clean, safe, orderly, and comfortable school can support students' emotional readiness to learn. Facilities, classroom organization, learning media, teacher presence, and school routines should be managed as parts of an

integrated learning climate. In rural schools, improvement does not always require large infrastructure projects. Simple actions, such as maintaining classroom cleanliness, arranging seats properly, using local materials as learning media, and creating consistent school routines, can help strengthen students' comfort and interest in learning (Sharma et al., 2024).

Second, teachers need to translate a positive school environment into daily classroom practice. A supportive school environment becomes meaningful only when students experience it directly through interaction. Teachers can strengthen students' learning interest by using questions, stories, demonstrations, group discussion, and contextual examples from students' daily lives. Teachers should avoid relying only on lecture-based instruction because elementary school students need active and concrete learning experiences. When students are given opportunities to speak, ask, try, and reflect, they are more likely to develop attention, enjoyment, participation, and persistence in learning (Evans, 2022).

Third, schools need to build realistic and continuous collaboration with parents. In rural communities, many parents may not always be able to attend formal school meetings because of work and economic responsibilities. Therefore, parental involvement should not be limited to attendance at meetings. Schools can encourage simple forms of involvement, such as checking children's books, asking what they learned at school, reminding them to complete homework, and giving appreciation for learning effort. These small practices can help children develop study habits and understand that learning is important (Levinthal et al., 2022).

Fourth, cooperation between school and family should be organized as a regular program, not as a temporary activity. Schools may develop communication books, class-based parent groups, periodic home-learning guidance, and short consultation sessions between teachers and parents. These mechanisms can help teachers understand students' home conditions and help parents understand school expectations. When communication is regular, students receive consistent support from both environments. This consistency is important because learning interest grows through repeated reinforcement from school and family (Jabłońska, 2021).

Overall, this study contributes to educational management by showing that students' learning interest is shaped by the closest environments surrounding them. The school environment provides formal learning experiences, while the family environment provides emotional and behavioral support. When both environments work together, students are more likely to show stronger attention, enjoyment, participation, persistence, and willingness to complete learning tasks. Therefore, efforts to improve students' learning interest should focus not only on students as individuals, but also on the quality of the learning ecosystem created by schools and families.

This study has several limitations. First, the research was conducted in one elementary school, so the findings should not be generalized to all rural elementary schools. The local context of SD Negeri 01 Adu Manis may have specific characteristics related to facilities, community culture, parental occupation, and school routines. Second, the data were collected mainly through questionnaires. Although questionnaires are useful for quantitative analysis, students' responses may be influenced by their understanding of the items and their response patterns. Third, the study focuses only on school environment and family environment, while learning interest may also be influenced by other factors such as peer influence, digital media use, socioeconomic status, teacher creativity, student personality, and prior achievement.

Future research should involve more schools and larger samples to provide broader evidence. Comparative studies between rural and urban elementary schools would also be useful to examine whether school and family environments influence learning interests differently across contexts. In addition, mixed-method research is recommended because interviews with students, parents, and teachers can provide deeper explanations of why certain school and family conditions increase or reduce students' learning interest. Future studies may also include student achievement data to examine whether learning interest serves as a link between environmental support and academic outcomes.

D. Conclusions

Based on the comprehensive regression analysis, this study conclusively establishes that both the school environment and the family environment exert positive and significant influences on students' learning interest in rural elementary education, both individually and collectively. Individually, the school environment demonstrates an exceptionally strong relationship, contributing 98.6% to the variance in learning interest, underscoring that supportive teacher-student interaction, positive peer relationships, clear discipline, adequate facilities, and a comfortable classroom atmosphere are pivotal in fostering active participation, sustained attention, and consistent task completion. Similarly, the family environment contributes 83.3%, confirming that parental attention, structured learning habits at home, open communication, emotional support, and family involvement are equally essential in cultivating students' confidence, persistence, responsibility, and positive attitudes toward schooling. Crucially, their simultaneous influence is overwhelming, with a multiple coefficient of determination of 99.2%, proving that learning interest reaches its peak when formal academic support from schools and emotional nurturing from families operate in seamless synergy. This near-total explanatory power highlights that neither environment alone can compensate for the other's absence; rather, they are complementary forces that together shape a holistic ecosystem for student motivation. Practically, these findings mandate a dual-track intervention strategy. Schools in rural areas must prioritize improving classroom climate, upgrading learning facilities, enforcing fair discipline, and enhancing teacher-student rapport

through regular, empathetic interaction. Concurrently, parents must be actively engaged through school-led programs that provide guidance on home-based learning support, effective communication techniques, and consistent supervision. Education offices bear a critical responsibility to facilitate this collaboration by investing in infrastructure development, launching parental engagement initiatives, and formulating policies that institutionalize school-family partnerships such as parent-teacher committees, home visit programs, and shared academic goal-setting to sustain learning interest as an ongoing, daily practice rather than an episodic effort. For future research, it is recommended to explore additional variables that might account for the remaining marginal variance or mediate these relationships, such as student self-efficacy, peer influence, teacher competency, or access to digital learning resources. Comparative studies across different rural regions or between rural and urban settings would enhance generalizability and reveal contextual nuances. Moreover, longitudinal designs are encouraged to track how changes in school and family environments over time influence learning interest trajectories, while qualitative methods—including interviews, focus groups, or ethnographic observations—could provide richer insights into the lived experiences and specific challenges faced by rural students, parents, and educators. Such mixed-method approaches would deepen theoretical understanding and inform more targeted, culturally responsive interventions.

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