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The Relationship Between the Completeness of School Facilities and Infrastructure and the Learning Achievement of Elementary School Students

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ABSTRACT

This research is motivated by the low learning achievement of grade V students at SD Negeri 1 Tolisu in the 2023/2024 school year. Although there are facilities and infrastructure such as computer laboratories, UKS rooms, and libraries, their use has not been maximized due to limited facilities and unsupportive room conditions. This study aims to determine the relationship between the completeness of school facilities and infrastructure and the learning achievement of grade V students at SD Negeri 1 Tolisu. The method used is descriptive quantitative with a correlational approach. The population and sample consist of all grade V students, totaling 27. Data on the completeness of facilities and infrastructure were collected through questionnaires, while learning achievement data were obtained from documentation of student report card scores. Data analysis was carried out using Pearson's product-moment correlation technique. The results showed a significant relationship between completeness of facilities and infrastructure and student learning achievement, with r calculated = 0.623 and r table = 0.381 at a 5% significance level. In addition, the t -test showed t calculated = 4.133 > t table = 1.703, reinforcing this positive relationship. These findings confirm that adequate facilities and infrastructure contribute significantly to improving student learning achievement.

1. Introduction

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals, and the skills needed by themselves, society, the nation, and the state (Pemerintah Republik Indonesia, 2003). Education is a conscious effort to develop the potential of human resources through educational activities. According to Rosnani & Gagaramusu (2021), education is basically a conscious effort to grow and develop the potential of human resources by encouraging and facilitating learning activities. One of the factors that support the success of educational programs in the learning process is

facilities and infrastructure (Kartika et al., 2019). According to Arjang et al. (2024), one of the important elements affecting the quality of education is the quality of school facilities and infrastructure. Quality education will emerge if there is a quality school, one of which has complete facilities that support the teaching and learning process (Lifia, 2021).

Adequate facilities and infrastructure in the school environment can create a conducive learning atmosphere, increase student learning motivation, and support an effective learning process (Oktarifaldi et al., 2024). The existence of educational facilities is an absolute necessity, so it is included in the components that must be fulfilled in the implementation of the educational process. Facilities and infrastructure play an important role in education as factors that drive and support learning activities. According to Bararah (2020), educational facilities are something that should not be ignored because their role facilitates students' understanding of the material presented in the teaching and learning program, making it more effective and efficient.

Facilities and infrastructure are all the facilities needed in learning activities. Infrastructure is a facility that indirectly supports the course of the educational process. The provisions of Government Regulation Number 57 of 2021 concerning national education standards state that the National Education Standards are the minimum criteria for the education system in all jurisdictions of the Unitary State of the Republic of Indonesia. Furthermore, it is explained in Article 25 paragraphs 1–3 that the standard of facilities and infrastructure is the minimum criterion that must be available to educational units in the implementation of education (Peraturan Pemerintah, 2021). Facilities, as referred to, are everything that can be used as tools and equipment in achieving learning goals. Infrastructure, as referred to, is the basic facilities needed to carry out the functions of the Education Unit.

According to Tarigan (2019), "The minimum infrastructure that must exist in an elementary school is a classroom, library room, principal's room, teacher's room, place of worship, bathroom, warehouse, playground/sports field. Shaputra in Inayah et al. (2021) also said that "Infrastructure is a whole set of equipment that does not directly support the educational process in schools. Learning infrastructure includes school buildings, rooms, and fields. Learning facilities include books, school equipment, and learning media. The completeness of learning infrastructure facilities makes learning conditions better. If the provision of infrastructure facilities is lacking, it will affect students' interest in learning."

It is important to pay attention to various factors that affect student learning achievement, one of which is school facilities and infrastructure. Facilities and infrastructure are external factors that greatly support the learning process of students in schools. According to Hernedi & Sumarsih (2023), one of these external factors is educational infrastructure. In learning activities, facilities and infrastructure are very important because they help the learning process run smoothly, enabling learning goals to be achieved. To properly achieve these goals, there must be student interest in learning during the process (Gagaramusu & Jannah,

2025). Adequate facilities and infrastructure can increase students' interest in learning, thereby improving student learning achievement.

Learning achievement is the learning outcome achieved after participating in the process of teaching and learning activities. According to Sulistiani et al. (2019), learning achievement is proof of student success in a learning activity. Learning achievement is the result that can be achieved by students after teaching and learning interactions are held within a certain period of time (Nurwahyudi & Sungkowo, 2023). Student learning achievement is a benchmark to assess whether students have undergone the learning process optimally.

Good learning achievement depends on the teacher's ability to implement learning in the classroom and, of course, needs to be supported by learning facilities. Lack of facilities and infrastructure can interfere with learning and affect student learning achievement (Ginanjar et al., 2023). The learning process becomes better and more enjoyable if a school can provide all the needs of students. The learning process at school will run smoothly and effectively if it is supported by adequate facilities, both in number, condition, and completeness.

In the 2023/2024 school year, student learning achievements at SDN 1 Tolisu show that many students still get below-average scores in several subjects. Based on researchers' observations at SDN 1 Tolisu, the school has several infrastructures sufficient to support the learning process, including a computer laboratory, UKS room, and library. The computer lab provides opportunities for students to utilize technology in learning. However, despite the existence of these facilities, there are still some drawbacks affecting their effectiveness, such as the library having a limited collection of books. In addition, the library's condition is very simple, with a plain atmosphere and room conditions, making it less attractive for students to use as a place for reading or learning. The UKS room has inadequate facilities, so its use to care for students' health in the event of an accident or emergency is less than optimal.

With the conditions described above, SDN 1 Tolisu still needs to improve and add facilities and infrastructure to support the learning process, which is ultimately expected to have a positive effect on improving student learning achievement. Less supportive facilities can hinder students' motivation, interest in learning, and health, which ultimately impacts student learning achievement. The purpose of this study is to further examine whether there is a relationship between the completeness of facilities and infrastructure in schools and the learning achievement of grade V students at SD Negeri 1 Tolisu.

2. Methodology

According to Amruddin et al. (2022), quantitative methods can be interpreted as research methods based on the philosophy of positivism, used to study certain populations or samples, with data collection using research instruments, and quantitative/statistical data analysis aimed at testing predetermined hypotheses.

This research was carried out using a descriptive quantitative correlational method, which is research based on data collected during the study and describes and interprets existing conditions or relationships using research instruments and statistical analysis to test hypotheses. This research was conducted at SDN 1 Tolisu. The population in this study consists of grade V students at SD Negeri 1 Tolisu, totaling 27 students. In sampling, the researcher used the saturated sampling technique., Sugiyono in Siregar (2021) explains that saturated sampling is a sample determination technique where all members of the population are used as samples. Thus, the sample in this study amounted to 27 students. The instrument used to collect data related to facilities and infrastructure was a questionnaire.

This questionnaire contains statements about the use of infrastructure facilities prepared by the researcher based on a previously modified research questionnaire, with scoring determined using the Likert scale. The instrument for obtaining student achievement data was documentation from student report cards. The student achievement data used in this study were obtained through academic achievement reports for the 2023/2024 school year, provided by the school and homeroom teachers. The data were compiled from midterm exam scores, final semester exams, and daily student assignment scores. This documentation of student achievement was collected from official school documents and used to measure student learning achievement during the research period, which was then analyzed using the Pearson product-moment correlation formula.

3. Result and Discussion

Equipment Completeness and Infrastructure

Adequate facilities and infrastructure must meet the minimum provisions set out in the standards of facilities and infrastructure in the Regulation of the Minister of Education and Culture Number 24 of 2007. The standards include minimum criteria for facilities, consisting of furniture, educational equipment, educational media, books and other learning resources, information and communication technology, and other equipment that must be owned by every school or madrasah. The minimum criteria for infrastructure consist of land, buildings, spaces, and power installations and services that must be owned by every school or madrasah. (Permendiknas, 2007). The results of the analysis of the various percentages of facilities and infrastructure can be seen in Table 1.

Table 1. Percentage of Variables in Completeness of Facilities and Infrastructure

No.	Facilities and Infrastructure	Percentage (%)	Criteria
1.	Classroom facilities	89	Very adequate
2.	Library facilities	77	Adequate
3.	Laboratory room	51	Quite adequate
4.	Computer lab facilities	67	Adequate
5.	Textbooks	84	Very adequate
6.	Sports facilities	88	Very adequate
7.	Other supporting facilities	78	Adequate
Average Presentation		78	Adequate

From the results of the research, data on the completeness of infrastructure facilities were obtained through the distribution of questionnaires to grade V students for the 2023/2024 school year. The data collected are in the form of processed scores or percentage calculations. Based on the results of the research analysis, the variable of infrastructure facilities at SD Negeri 1 Tolisu obtained an average score of 78%, which falls under the adequate criteria. In detail, classroom facilities (89%), textbooks (84%), and sports facilities (88%) are in the "Very Adequate" category; libraries (77%), computer laboratories (67%), and other supporting facilities (78%) are in the "Adequate" category; while laboratory spaces (51%) are in the "Moderate" category. These findings indicate that although most facilities and infrastructure are adequate, several aspects need improvement to optimally support the learning process. Improving the completeness of facilities and infrastructure is expected to contribute positively to enhancing student learning achievement.

Learning Achievement

The research data on learning achievement were obtained from the report card scores of grade V students in the 2023/2024 school year. Based on data obtained from 27 respondents who are grade V students for the 2023/2024 school year, the presentation results of the student learning achievement variables are shown in Table 2.

Table 2. Presentation of Student Learning Achievement Variables

Score Interval	Student Frequency	Percentage Value	Criteria
> 90	3	11%	Very High
82 - 90	9	33%	High
74 – 81	11	41%	Low
< 74	4	15%	Very Low
Sum	27	100%	

Based on the table of data processing results above, it shows the variables of student learning achievement, where the percentage in the very high criteria is 11% (3 respondents), the percentage in the high criteria is 33% (9 respondents), the percentage in the low criteria is 41% (11 respondents), and the percentage in the very low criteria is 15% (4 respondents). The average student score is 80.47 with a maximum score of 92, a minimum score of 63, and a standard deviation of 7.08. From these results, it can be seen that the majority of students, namely 56% (15 respondents), fall into the low and very low criteria. This shows that most students have not yet achieved the expected level of learning achievement. Thus, student learning achievement is in the low category. Therefore, it can be concluded that the learning achievement of grade V students of SDN 1 Tolisu in the 2023/2024 school year is included in the low category, indicating the need for more attention in improving student learning achievement.

The Relationship Between the Completeness of Facilities and Infrastructure and Learning Achievement

The calculation shows that $r_{count} = 0.623$. When consulted with the Pearson product-moment correlation table with the number of samples ($N = 27$), at an error level of 5% (0.05), the $r_{table} = 0.381$ is obtained. Data analysis showed that the value of r_{count} was greater than r_{table} ($r_{count} = 0.623 > r_{table} = 0.381$) and the significance value was $0.000 < 0.05$, which means that H_0 is rejected and H_1 is accepted. Then, based on the t value, t_{count} was greater than t_{table} ($t_{count} = 4.133 > t_{table} = 1.703$). This shows that there is a positive and significant relationship between the completeness of facilities and infrastructure and the learning achievement of grade V students of SD Negeri 1 Tolisu. To find out how strong this relationship is, the guidelines on the level of correlation and strength of the relationship, as stated in Table 3, can be used.

Table 3. Correlation Levels and Relationship Strength

Interval Coaphysin	Relationship Level
Between, 0.800 to 1.000	Very high
Between, 0.600 to 0.800	Tall
Between, 0.400 to 0.600	Enough
Between, 0.200 to 0.400	Low
Between, 0.00 to 0.200	Very Low

Source: Suharsimi Arikunto in (Anjasmara, 2018)

If you look at the table above, the r_{xy} value of 0.623 falls within a correlation coefficient range of 0.600 to 0.800, which is interpreted as "High." Based on these results, it shows that there is a positive and significant relationship between the completeness of infrastructure facilities and student learning achievement, with a significance value of $0.000 < 0.05$. This aligns with the findings of (Rosidih, 2023) about the influence of school facilities and infrastructure on student learning achievement, which shows there is an influence between school facilities and infrastructure and student learning achievement in grade VII.

These results also support the findings of (Susanti, 2024) regarding the analysis of the influence of the quality of school facilities and infrastructure on the learning achievement of elementary school students. Susanti's research shows that the quality of physical facilities, such as classrooms, libraries, and sports facilities, as well as infrastructure like information technology support, plays an important role in creating a good learning environment. An adequate learning environment can increase students' motivation to learn, engagement in learning, and ultimately, their learning achievement. Thus, H_1 is proven true: there is a positive and significant relationship between the completeness of infrastructure facilities and the learning achievement of grade V students of SD Negeri 1 Tolisu.

Coefficient of Determination

The amount of contribution of the variable of facilities and infrastructure (X) to student learning achievement (Y) is expressed in the form of the coefficient of determination (KP).

$$\begin{aligned} \text{KP} &= r^2 \cdot 100\% \\ &= (0,623)^2 \cdot 100\% \\ &= 38,81\% \end{aligned}$$

This means that approximately 38.81% of student learning achievement (Y) is influenced by school facilities and infrastructure (X). Meanwhile, 61.19% is influenced by other variables or factors that can affect student learning achievement.

4. Conclusion

This study aims to determine the relationship between the completeness of school facilities and infrastructure and the learning achievement of grade V students at SD Negeri 1 Tolisu. Based on the results of the research conducted, it can be concluded that the completeness of facilities and infrastructure has a positive and significant relationship with student learning achievement. Adequate facilities and infrastructure have been proven to create a more conducive learning atmosphere and support a smooth learning process in the classroom. Although some of the facilities at SD Negeri 1 Tolisu are adequate, there are still shortcomings, such as the condition of the library and the UKS space, which are not optimal. This confirms that facilities and infrastructure play a major role in improving student learning achievement. The implication is that planning and management of infrastructure facilities must be an important part of efforts to improve the quality of education. Therefore, schools and stakeholders need to continue meeting the needs for learning facilities and improving the quality of teaching to support student achievement. This study successfully met its objectives and demonstrated a real relationship between the variables studied. As a follow-up, further research can expand the sample scope to other schools and add variables such as learning motivation, teacher quality, and parental involvement to gain a more comprehensive understanding of their influence on student learning achievement.

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