

The Effect of Educational Facilities and Infrastructure Management and Teacher Professionalism on Learning Quality in Public Elementary Schools in Suak Tapeh District, Banyuasin

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ABSTRACT

This study aimed to analyze the effect of educational facilities and infrastructure management and teacher professionalism on learning quality at public elementary schools in Suak Tapeh District, Banyuasin Regency. The study employed a quantitative approach with an ex post facto design. The population consisted of 161 teachers, and 100 teachers were selected through proportional probability sampling. Data were collected using Likert-scale questionnaires and documentation. The instruments were valid and reliable, with Cronbach's alpha coefficients of 0.902 for facilities and infrastructure management, 0.906 for teacher professionalism, and 0.891 for learning quality. Data were analyzed using descriptive statistics, prerequisite tests, simple linear regression, and multiple linear regression with SPSS version 26. Facilities and infrastructure management had a positive and significant effect on learning quality ($B = 0.495$; $t = 4.984$; $p < 0.001$; $R^2 = 20.2\%$). Teacher professionalism also had a positive and significant effect on learning quality ($B = 0.619$; $t = 7.322$; $p < 0.001$; $R^2 = 35.4\%$). Simultaneously, both predictors had a positive and significant effect on learning quality ($F = 31.751$; $p < 0.001$; $R^2 = 39.6\%$), with the equation $Y = 0.952 + 0.253X_1 + 0.512X_2$. These findings contribute empirical evidence that learning quality improves when schools manage educational facilities effectively and sustain teachers' professional development.

Keywords: Educational Facilities and Infrastructure Management; Teacher Professionalism; Learning Quality

INTRODUCTION

Learning quality is a central dimension of educational quality because school success is largely determined by the quality of the teaching and learning process experienced by students. At the elementary-school level, learning quality is not limited to academic attainment; it also concerns the school's capacity to provide active, effective, contextual, and developmentally appropriate learning. High-

quality learning requires clear planning, purposeful implementation, educative assessment, and adequate educational resources (Kompri, 2023; Sagala, 2021). Ideally, elementary schools should have adequate facilities and professional teachers so that learning can be active, creative, and meaningful. Facilities management should extend beyond providing equipment to ensuring its continuous use and maintenance. At the same time, teachers should strengthen their professionalism through training, teacher working groups, supervision, instructional-media development, scholarly writing, and the use of learning technologies. The synergy between well-managed facilities and professional teachers is therefore expected to strengthen classroom learning.

This ideal condition has not been fully realized in the public elementary schools of Suak Tapeh District, Banyuasin Regency. Preliminary observations indicated that the district's 15 public elementary schools still faced limitations in educational facilities and infrastructure. Several schools lacked teaching aids, instructional media, textbooks, and learning kits. These constraints reduced teachers' capacity to explain concepts concretely and engagingly, particularly in lessons requiring visualization, practice, and direct activity. Consequently, learning had not consistently generated optimal student participation. The condition demonstrates that learning-quality problems in Suak Tapeh District are inseparable from the readiness of school resources. Shortages of teaching aids, textbooks, instructional media, and learning kits can make instruction overly verbal. At the elementary level, excessive reliance on verbal explanation may reduce students' concrete learning experiences; teachers therefore need both facility support and pedagogical creativity to maintain engagement.

Teacher professionalism also presents a challenge. Preliminary interviews suggested that some teachers were teaching outside their academic background or relevant field of expertise. This mismatch could affect the depth of subject-matter mastery, method selection, and the quality of explanations provided to students. Moreover, instructional media and teaching aids had not been fully integrated into classroom activities. These conditions reveal a gap between learning that should be supported by appropriate facilities and professional competence and the limited practices observed in schools. Although earlier studies have examined facilities, professional competence, teacher performance, student admissions, and educational services, few have specifically tested the simultaneous effects of facilities and infrastructure management and teacher professionalism on learning quality in public elementary schools in Suak Tapeh District.

The novelty of this study lies in positioning learning quality as the principal outcome predicted jointly by school-facility management and teacher professionalism in this specific elementary-school context. Accordingly, this study aimed to analyze the effect of educational facilities and infrastructure management on learning quality, the effect of teacher professionalism on learning quality, and the simultaneous effect of both variables on learning quality in public elementary schools in Suak Tapeh District, Banyuasin Regency. The findings are expected to

provide an empirical basis for principals, teachers, and the local education office to design data-informed strategies that respond to schools' actual needs.

LITERATURE REVIEW

Previous Related Studies

Previous research indicates that educational facilities and teacher professionalism are associated with educational quality. Chotimah (2021) found that facilities and infrastructure management and teachers' professional competence influenced new-student admissions. Sunaengsih (2016) reported that instructional media affected learning quality in A-accredited elementary schools. Prasetya and Harjanto (2020) demonstrated that online learning quality was related to learning outcomes during the COVID-19 pandemic. Other studies have shown that teacher professionalism is associated with teacher performance and the quality of educational services (Hapizoh et al., 2020; Ruslan et al., 2020; Yuseva et al., 2024). International evidence also supports the relevance of the two predictors. Barrett et al. (2015) associated classroom design with students' learning progress, whereas Uline and Tschannen-Moran (2008) linked school-facility quality with school climate and student achievement. Kunter et al. (2013) and Fauth et al. (2019) further demonstrated that teachers' professional competence contributes to instructional quality and student outcomes. Together, these studies suggest that learning quality depends on both the physical conditions of schooling and teachers' capacity to transform available resources into meaningful instruction.

Learning Quality

At the elementary-school level, learning quality refers to the quality of the learning experiences that occur in the classroom. High-quality learning does not merely transmit information; it gives students opportunities to observe, ask questions, experiment, discuss, solve problems, and demonstrate learning outcomes. Learning quality is therefore strongly influenced by the readiness of the learning environment and teachers' ability to manage instructional interaction in a planned manner. Learning quality does not develop independently. Its improvement requires a school system that supports facilities management, teacher readiness, school leadership, curriculum implementation, a conducive learning environment, and community participation. Among these factors, facilities and infrastructure management and teacher professionalism are especially important because they directly affect the school's readiness to provide an enabling learning environment and the quality of classroom interaction.

Educational Facilities and Infrastructure Management

Research on the physical school environment shows that learning quality is associated with the conditions in which instruction occurs. Barrett et al. (2015) found that classroom features, including lighting, spatial flexibility, visual

complexity, color, and spatial connections, were associated with students' learning progress. This finding is relevant because facilities management concerns not only ownership of facilities but also the school's ability to organize them in ways that support learning. Uline and Tschannen-Moran (2008) likewise emphasized that school-facility quality is related to school climate and student achievement. Educational facilities may influence learning quality through the safety, comfort, order, and psychological support experienced by school members. Well-organized and well-maintained facilities signal that learning is a school priority.

Educational facilities and infrastructure management is the process of planning, procuring, using, maintaining, inventorying, and supervising educational resources so that they support instruction effectively and efficiently. Facilities such as books, teaching aids, instructional media, technological devices, and practical equipment help teachers explain content concretely. Infrastructure such as classrooms, libraries, laboratories, teachers' rooms, principals' offices, places of worship, and safe school environments supports a conducive learning atmosphere. Educational facilities are therefore not merely administrative complements but strategic instruments for enriching students' learning experiences (Gunawan, 2021; Karwono, 2021; Matin & Nurhattati, 2022).

In school-management practice, facilities should be managed through a complete cycle. Planning should be based on instructional needs rather than only on lists of unavailable items. Procurement should consider priorities, equitable allocation across classes, curriculum alignment, and the school's capacity to maintain the resources. Once acquired, facilities should be used routinely, evaluated for effectiveness, and maintained so that they continue to support learning. Regulatory standards also place educational facilities and infrastructure within Indonesia's National Education Standards. Regulation of the Minister of Education, Culture, Research, and Technology No. 22 of 2023 requires education units to meet facility and infrastructure standards appropriate to early-childhood, primary, and secondary education. The regulation underscores that school facilities are prerequisites for orderly and high-quality learning. When facilities are unavailable or poorly managed, teachers face limitations in varying methods, media, and learning activities.

Teacher Professionalism

Teacher professionalism is a primary determinant of learning quality. Professional teachers are expected not only to master subject matter but also to manage classrooms, design instruction, use media, conduct assessment, adapt strategies to student characteristics, and pursue continuous professional growth. Professionalism is also reflected in commitment to duties, communication skills, discipline, understanding of educational foundations, and willingness to reflect on instructional practice (Mulyasa, 2018; Rusman, 2019; Zahroh, 2022). In relation to learning quality, teacher professionalism cannot be reduced to employment status or academic qualifications. It is evident in the teacher's ability to translate the

curriculum into learning activities appropriate to students' characteristics. Professional teachers identify essential content, sequence learning activities, use stimulating questions, provide feedback, and follow up on students' learning results. Teacher professionalism becomes particularly important when schools face facility limitations. Professional teachers can adapt strategies to available conditions, develop alternative media, and use the surrounding environment as a learning resource. Conversely, adequate facilities do not automatically improve learning quality when teachers lack the pedagogical capacity to use them effectively.

METHOD

Design and Samples

This study employed a quantitative approach with an ex post facto design. No treatment was administered to respondents; instead, the study examined the statistical effects of conditions that had already occurred in the field. The independent variables were educational facilities and infrastructure management (X_1) and teacher professionalism (X_2), while the dependent variable was learning quality (Y). The study was conducted in public elementary schools in Suak Tapeh District, Banyuasin Regency, in 2026. The population comprised all 161 teachers working in the district's public elementary schools. A sample of 100 teachers was selected through proportional probability sampling so that each school was represented according to its number of teachers. Sample determination and analytical procedures followed principles of quantitative educational research and educational statistics (Arikunto, 2021; Sugiyono, 2022; Kesumawati & Aridanu, 2025).

Instruments and Procedures

Data were collected using Likert-scale questionnaires and documentation. The questionnaires measured respondents' perceptions of facilities and infrastructure management, teacher professionalism, and learning quality. Facilities and infrastructure management was measured through indicators of school facilities, student learning facilities, and environmental support. Teacher professionalism was measured through subject-matter mastery, research and scholarly-writing ability, professional-development capacity, and knowledge of educational foundations. Learning quality was measured through clarity of vision and mission, principal professionalism, teacher professionalism, a conducive learning environment, a broad and balanced curriculum, and community participation. The instruments were tested before the main data collection. The validity test indicated that the questionnaire items were suitable for use. Reliability analysis produced Cronbach's alpha coefficients of 0.902 for facilities and infrastructure management, 0.906 for teacher professionalism, and 0.891 for learning quality, demonstrating satisfactory internal consistency. Documentation was used to complement questionnaire data concerning the schools, teachers, and research setting.

Data Analysis

Data were analyzed using descriptive statistics, the Kolmogorov-Smirnov normality test, linearity tests, multicollinearity tests, simple linear regression, and multiple linear regression with SPSS version 26. The hypotheses were tested at a significance level of 0.05. Descriptive analysis summarized the minimum, maximum, mean, and standard deviation of each variable. The prerequisite tests assessed whether the data met the assumptions for regression analysis, while the regression models examined the partial and simultaneous effects of X_1 and X_2 on Y .

RESULT AND DISCUSSION

Descriptive Statistics

Descriptive statistical analysis was conducted to provide an overview of facilities and infrastructure management, teacher professionalism, and learning quality. The results are presented in Table 1.

Table 1. Descriptive Statistics and Variable Categorization

Variable	N	Min.	Max.	Mean	SD	Dominant Category
Facilities and infrastructure management (X_1)	100	3.93	4.71	4.28	0.188	High
Teacher professionalism (X_2)	100	3.89	4.71	4.29	0.199	High
Learning quality (Y)	100	3.86	4.68	4.23	0.207	High

Table 1 shows that facilities and infrastructure management had a minimum score of 3.93, a maximum score of 4.71, a mean of 4.28, and a standard deviation of 0.188. The variable was therefore categorized as high. Respondents generally perceived school facilities, student learning facilities, and environmental support positively, although not all instructional-facility needs had been met optimally. The high mean should be interpreted together with the relatively small standard deviation of 0.188. Responses were concentrated around the mean, yet differences remained in teachers' experiences. Such variation may reflect unequal access to classrooms, teaching aids, books, instructional media, and environmental support. A high overall category therefore does not necessarily indicate that facilities are equally available in every school.

Teacher professionalism had a minimum score of 3.89, a maximum score of 4.71, a mean of 4.29, and a standard deviation of 0.199, placing it in the high category. Most teachers were perceived as professionally prepared in subject-matter mastery, professional development, understanding educational foundations, and carrying out instructional duties. Nevertheless, continuing professional development remains

necessary to improve learning quality. The mean professionalism score of 4.29 suggests that teachers possess a strong professional foundation. However, learning quality requires adaptive capability. Teachers need to update their strategies, improve how they explain content, develop instructional media, reflect on practice, and adjust learning to students' needs. These improvements are particularly important in schools experiencing facility shortages or mismatches between teachers' expertise and teaching assignments. Learning quality had a minimum score of 3.86, a maximum score of 4.68, a mean of 4.23, and a standard deviation of 0.207, which also placed it in the high category. Learning in the district's public elementary schools was generally perceived as good, but it still needs to be strengthened through more effective facilities management and improved teacher professionalism.

Prerequisite Tests

Before regression analysis, the data were tested for normality, linearity, and multicollinearity to ensure that the fundamental assumptions of regression were met. The results are summarized in Table 2.

Table 2. Summary of Regression Prerequisite Tests

Test	Indicator	Value	Criterion	Decision
Normality X ₁	Asymp. Sig.	0.118	> 0.05	Normal
Normality X ₂	Asymp. Sig.	0.200	> 0.05	Normal
Normality Y	Asymp. Sig.	0.177	> 0.05	Normal
Linearity X ₁ -Y	Deviation from Linearity	0.582	> 0.05	Linear
Linearity X ₂ -Y	Deviation from Linearity	0.292	> 0.05	Linear
Multicollinearity X ₁	Tolerance/VIF	0.799/1.251	Tolerance > 0.10; VIF < 10	No multicollinearity
Multicollinearity X ₂	Tolerance/VIF	0.799/1.251	Tolerance > 0.10; VIF < 10	No multicollinearity

The normality test yielded significance values of 0.118 for facilities and infrastructure management, 0.200 for teacher professionalism, and 0.177 for learning quality. All values exceeded 0.05; therefore, the data were normally distributed. The linearity tests produced Deviation from Linearity values of 0.582 for the relationship between facilities and infrastructure management and learning quality and 0.292 for the relationship between teacher professionalism and learning quality. Because both values exceeded 0.05, each independent variable had a linear

relationship with the dependent variable. The multicollinearity test showed that both independent variables had a tolerance value of 0.799 and a VIF of 1.251. The tolerance exceeded 0.10 and the VIF was below 10, indicating no multicollinearity. The data therefore met the assumptions required for simple and multiple linear regression.

Regression Results

Hypothesis testing examined the effect of facilities and infrastructure management on learning quality, the effect of teacher professionalism on learning quality, and the simultaneous effect of both independent variables. The results are summarized in Table 3.

Table 3. Summary of Regression Analysis

Model	R	R ²	B	Test Value	p	Regression Equation
$X_1 \rightarrow Y$	0.450	0.202	0.495	$t = 4.984$	< 0.001	$Y = 2.105 + 0.495X_1$
$X_2 \rightarrow Y$	0.595	0.354	0.619	$t = 7.322$	< 0.001	$Y = 1.576 + 0.619X_2$
$X_1 \text{ and } X_2 \rightarrow Y$	0.629	0.396	$X_1 = 0.253;$ $X_2 = 0.512$	$F = 31.751$	< 0.001	$Y = 0.952 + 0.253X_1 + 0.512X_2$

The first simple-regression model showed that facilities and infrastructure management had a positive and significant effect on learning quality. The regression coefficient was 0.495, with $t = 4.984$ and $p < 0.001$, supporting the first hypothesis. The equation $Y = 2.105 + 0.495X_1$ indicates that a one-unit increase in facilities and infrastructure management was associated with a 0.495-unit increase in learning quality. The R^2 value of 0.202 shows that facilities management accounted for 20.2% of the variance in learning quality. The second model showed that teacher professionalism had a positive and significant effect on learning quality. The coefficient was 0.619, with $t = 7.322$ and $p < 0.001$, supporting the second hypothesis. The equation $Y = 1.576 + 0.619X_2$ indicates that a one-unit increase in teacher professionalism was associated with a 0.619-unit increase in learning quality. The R^2 value of 0.354 shows that teacher professionalism accounted for 35.4% of the variance in learning quality. The multiple-regression model showed that facilities and infrastructure management and teacher professionalism simultaneously had a positive and significant effect on learning quality, as indicated by $F = 31.751$ and $p < 0.001$. The resulting equation was $Y = 0.952 + 0.253X_1 + 0.512X_2$. The R^2 value of 0.396 indicates that the two predictors jointly explained 39.6% of the variance in learning quality, while the remaining 60.4% was associated with factors outside the model. All three research hypotheses were therefore supported.

The Effect of Facilities and Infrastructure Management on Learning Quality

The first finding demonstrates that better management of school facilities and infrastructure is associated with higher learning quality. Facilities that are properly planned, used, and maintained help teachers present content in concrete, varied, and engaging ways. The availability of books, teaching aids, instructional media, learning spaces, libraries, and a conducive school environment is an important foundation for an effective learning process. The result reinforces the view that facilities and infrastructure are fundamental conditions for effective instruction. Available and well-managed facilities help teachers reduce excessive dependence on lecturing and enable students to learn through direct experience. At the elementary-school level, this support is especially important because students often require objects, images, media, and hands-on activities to understand concepts.

The finding is consistent with Barrett et al. (2015), who argued that learning is influenced not only by instructional content but also by the quality of the learning environment. Bright, comfortable, flexible classrooms with access to instructional media can increase student engagement. Accordingly, elementary-school facilities management should focus on the quality of students' learning experiences rather than merely on completing inventory lists. The 20.2% contribution of facilities and infrastructure management indicates that educational facilities are important, although they are not the sole determinant of learning quality. The result aligns with Karwono (2021), Matin and Nurhattati (2022), and Regulation No. 22 of 2023, which position facilities and infrastructure as strategic components of educational provision. It also supports Chotimah (2021), Wiguna et al. (2020), and Sunaengsih (2016), who found that the availability and use of learning facilities contribute to educational-process quality. Uline and Tschannen-Moran (2008) further clarify that facility quality is associated with school climate. In this study's context, well-maintained facilities can strengthen safety, comfort, discipline, and school members' readiness to learn. Inadequate facilities, by contrast, may disrupt instruction, particularly when teachers need teaching aids, books, or visual media.

The Effect of Teacher Professionalism on Learning Quality

The second finding shows that teacher professionalism positively and significantly affects learning quality. The coefficient of 0.619 and the 35.4% contribution indicate that teacher professionalism had greater partial predictive power than facilities and infrastructure management. This is understandable because teachers directly implement instruction. Professional teachers can design lessons, master content, select appropriate methods, use media, manage classrooms, assess learning, and follow up students' results. Kunter et al. (2013) reported that teachers' professional competence affects instructional quality and student development. This evidence is consistent with the present finding because teacher professionalism is not merely a personal attribute; it is expressed in the quality of learning interactions. Professional teachers organize content, explain concepts clearly, adapt strategies, and sustain students' engagement.

Fauth et al. (2019) similarly found that teacher competence is associated with student outcomes through teaching quality. The effect of professionalism on learning quality therefore occurs through concrete classroom actions, including clear objectives, concept reinforcement, purposeful questions, feedback, varied activities, and formative assessment. This mechanism helps explain why teacher professionalism made the larger partial contribution in this study. The finding also supports Rusman (2019), Mulyasa (2018), and Zahroh (2022), who describe teacher professionalism as a foundation of learning quality. Professional teachers do more than perform routine teaching; they develop themselves, reflect on practice, and adapt learning to students' needs. The finding further corroborates Hapizoh et al. (2020), Mardalena et al. (2020), and Ruslan et al. (2020), who linked teacher professionalism and competence to improved teacher performance and educational-process quality. Desimone (2009) emphasized that professional development is more effective when it focuses on content, involves active learning, is coherent with school needs, has sufficient duration, and is conducted collectively. In Suak Tapeh District, teacher development should therefore extend beyond one-off training and address actual instructional problems, including media use, content strengthening, and assessment design.

Simultaneous Effects and Practical Contributions

The third finding indicates that facilities and infrastructure management and teacher professionalism jointly have a positive and significant effect on learning quality. The R^2 value of 39.6% means that nearly two-fifths of the variance in learning quality was explained by the two variables. In the simultaneous model, the coefficient for teacher professionalism was larger than that for facilities management, indicating that adequate facilities still require professional teachers to be used effectively. This simultaneous effect shows that learning quality is a systemic outcome. Facilities management provides physical and instructional support, whereas teacher professionalism transforms that support into meaningful learning. When both dimensions function together, schools are better positioned to provide active, contextual, and student-responsive learning.

Conceptually, the two variables cannot be separated. Good facilities have limited impact when teachers lack the creativity and skill to use them. Conversely, professional teachers face constraints when instructional facilities are extremely limited. Learning-quality improvement should therefore integrate better school-facility management with stronger teacher capacity. In Suak Tapeh District, this relationship should be translated into concrete school programs. Procurement of teaching aids, books, and instructional media should always be accompanied by classroom-use plans. Teachers should be involved from the planning stage so that resources correspond to subject content, student characteristics, and classroom conditions.

Schools should also develop mechanisms for evaluating facility use through equipment-use records, teacher discussions, classroom supervision, and

instructional reflection. When resources are rarely used, principals should identify whether the cause is insufficient teacher skill, poor relevance, unclear scheduling, or limited accessibility. Teacher-professionalism programs should strengthen resource-based instructional management. Teachers should not only use available facilities but also develop teaching materials, adapt simple media, and connect lessons with the surrounding environment. Such practices are especially important in elementary education, where learning should remain close to students' concrete experiences.

Practically, principals need to strengthen facilities governance based on instructional needs. Schools should plan resources, maintain accurate inventories, prioritize teaching aids and instructional media, and ensure optimal use. Teachers should be encouraged to use facilities creatively and to make simple media when school resources are limited. The local education office should provide more targeted policy and funding support for elementary schools experiencing shortages. Operationally, inventories should record not only the number of items but also utilization rates, equipment condition, maintenance needs, and alignment with instructional content. Academic supervision can then examine how teachers use teaching aids, books, media, and the school environment as learning resources. Principals can integrate facilities management and teacher professionalism into academic supervision. Supervision should assess not only the completeness of instructional administration but also how teachers use media, manage student activity, provide feedback, and adjust learning based on assessment results. In this way, supervision becomes an instrument for quality improvement rather than a routine compliance check.

For the education office, the findings support policies that connect facility assistance with teacher development. Teaching aids and books are more likely to affect learning when accompanied by guidance on use, utilization monitoring, and evaluation of changes in teaching practice. This approach directs facility investment more explicitly toward learning-quality improvement. Through these strategies, schools can build a more sustainable culture of quality. Facilities become learning resources, teachers become the primary drivers of learning, and principals manage a system that ensures mutual reinforcement between the two. Schools should also strengthen teacher working groups, training, academic supervision, instructional-design mentoring, media development, reflective practice, scholarly writing, teaching-material development, and educational-technology use.

Research Limitations

This study has several limitations. First, the primary data were obtained from teachers' perception questionnaires, leaving the possibility of response subjectivity. Second, the ex post facto design was non-experimental; the identified effects should therefore be interpreted as statistical or predictive relationships rather than absolute causality. Third, the study did not include other potentially relevant variables, such as principal leadership, student motivation, school culture, school climate, parental

support, and academic supervision. Future studies should incorporate these variables or use mixed methods to develop a more comprehensive understanding of learning quality.

CONCLUSION

Educational facilities and infrastructure management had a positive and significant effect on learning quality in public elementary schools in Suak Tapeh District, Banyuasin Regency. Teacher professionalism also had a positive and significant effect. Simultaneously, the two variables explained 39.6% of the variance in learning quality, with the multiple-regression equation $Y = 0.952 + 0.253X_1 + 0.512X_2$. The larger coefficient for teacher professionalism indicates that facilities yield greater instructional value when teachers have the competence to use them effectively. Principals should strengthen facilities management through needs assessment, inventorying, maintenance, utilization monitoring, and proposals for facility support to the education office. Teachers should improve professionalism through training, teacher working groups, reflective practice, media development, and stronger classroom and subject-matter management. The education office should support learning-quality improvement through targeted facilities assistance, sustained teacher professional development, and school-data-based quality evaluation.

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