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Management of Facilities and Infrastructure to Improve the Quality of Education at SMP Negeri 2 Remboken

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ABSTRACT

Fundamentally, proper management of facilities and infrastructure can create a conducive learning environment that encourages quality education. However, many schools, including SMP Negeri 2 Remboken, still face challenges in facility management, including budget constraints, suboptimal maintenance, and underutilization of existing facilities. This study aims to analyze the principal's planning in facility management, encourage the principal's creativity in effective facility utilization, and assess the principal's ability in organizing infrastructure to support educational quality improvement. The research employs a descriptive qualitative method, with data collected through documentation, observation, and interviews with educational staff, representatives, and the principal. Data validity was ensured through triangulation and member checking. In management practices, the principal demonstrated high creativity by utilizing local resources, optimizing BOS funds, establishing community partnerships, and implementing simple technology to support administrative efficiency of infrastructure facilities. The principal's organizational capability was reflected in the formation of effective work teams, clear task division, and systematic maintenance and inventory systems. The optimal implementation of facility management positively impacted education quality, evidenced by increased student learning motivation, more professional teacher performance, and a clean, comfortable, and productive school environment. Thus, proper infrastructure management also fosters participation, creativity, and educational quality effectiveness for the sustainability of junior high schools in rural areas.

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INTRODUCTION

Efforts made consciously and planned to foster and encourage the development of students' potential in spiritual aspects, knowledge, skills, and personality are referred to as education (Mamirjonovna, 2023). Through quality education, human beings can be developed into superior resources with strong character, capable of adapting to the challenges of an increasingly competitive era (Tyas, Sunarto, & Naibaho, 2020). Success in education depends not only on the roles of teachers and students but also on various other elements such as curriculum, learning atmosphere, and completeness of learning facilities (Shmis, Ustinova, & Chugunov, 2019).

Educational equipment and facilities are important factors that support the sustainability of the learning process at school (Zepatou, Loizidou, Chaloulakou, & Spyrellis, 2016). According to Bafadal, management of educational facilities and infrastructure is a collaborative activity aimed at optimizing the use of all school facilities efficiently and effectively to achieve maximum educational goals (Istakri, Sofyan, & Ismail,

2024). This means that the existence of complete, well-maintained, and properly utilized educational facilities will foster a conducive learning climate and encourage improved education quality (Felix, 2025). Conversely, the absence or limitation of facilities and infrastructure hinders the learning process, reduces student motivation, and potentially lowers the quality of educational outcomes (Barrett, Treves, Shmis, & Ambasz, 2019).

In education management, the role of the principal as a manager includes responsibility for all school resources, including facilities and infrastructure (Usman, 2016). Mulyasa (2021) stated that the principal functions as a manager who plans, organizes, mobilizes, and supervises educational activities to ensure effective operation. School principals must also be able to identify learning facility needs, develop procurement plans based on priorities, and maintain sustainable usage (Leal Filho et al., 2019).

However, in practice, many schools in Indonesia still face various obstacles in managing facilities and infrastructure (Elpina, Marzam, Rusdinal, & Gustituati, 2021). Common problems include limited budgets, lack of awareness regarding the importance of maintenance, lack of creativity in utilizing local resources, and weak supervision systems (Avortri, Nabukalu, & Nabyonga-Orem, 2019). This condition was also found at SMP Negeri 2 Remboken, a public school in Minahasa Regency, North Sulawesi Province (Runtuwene, Mandagi, & Dilapanga, 2022). Initial observations indicate that the facilities are not fully adequate to support all learning activities, particularly in classrooms, computer laboratories, and technology-based learning media (Mokoro, 2020).

Despite these limitations, schools—especially school principals—show strong commitment to improving education quality through better management of facilities and infrastructure. These efforts manifest in staged planning for procurement and maintenance of facilities, using School Operational Assistance (BOS) funds, and collaborating with the school committee and surrounding community. The principal's creativity is evident in maximizing the use of available facilities so that they are optimally used by both teachers and students.

Infrastructure plays a crucial role in improving education quality, aligning with Adilah and Suryana's (2021) view that schools with sufficient and well-managed facilities achieve higher learning effectiveness. Lestari's research (2023) also shows that planned and sustainable facility management can boost student learning motivation and outcomes. Therefore, management of facilities and infrastructure focuses not only on meeting physical needs but also includes managerial, innovative, and cooperative aspects.

In the modern education context shaped by the digital era and the Freedom of Learning policy, the role of school principals in managing facilities and infrastructure becomes increasingly important. Principals must adapt to technological advances and implement data-based management systems to support more appropriate decision-making. Thus, managing school facilities transcends administrative tasks and becomes part of the broader strategy to improve education quality.

This research focuses on how school principals plan, manage, and coordinate educational facilities and infrastructure to improve the quality of learning at SMP Negeri 2 Remboken. The researcher hopes the findings will provide insights into management of infrastructure facilities at the junior high school level in rural areas comprehensively.

More specifically, the study aims to examine the role of school principals in organizing infrastructure to meet optimal learning needs for improving education quality, analyze their creativity in managing facilities and infrastructure efficiently and effectively, and describe the stages of infrastructure management planning undertaken by principals to enhance education quality at SMP Negeri 2 Remboken. The data obtained are expected to contribute practically and theoretically to improving school infrastructure management and serve as a reference for teachers, principals, and education stakeholders in designing effective infrastructure management strategies to realize quality, efficient, and sustainable education.

METHOD

The research employed a qualitative descriptive method to understand in depth how the principal managed facilities and infrastructure to improve the quality of education at SMP Negeri 2 Remboken.

The study took place at SMP Negeri 2 Remboken, located in Remboken District, Minahasa Regency, North Sulawesi. This school was purposively selected because, despite limited facilities, the principal demonstrated commitment to improving education quality through creative and efficient facility management.

Primary data were collected from educators, school representatives, and the principal, while secondary data included documents, photo archives, and other relevant materials. Data collection techniques involved observation to assess the condition and utilization of facilities, in-depth interviews with the principal, teachers, and administrative staff, and documentation review such as inventory lists, activity reports, and photos of school facilities.

Data analysis followed the interactive model of Miles and Huberman, which involved data reduction by filtering and focusing on critical information, data presentation in charts, tables, or narratives, and drawing conclusions based on identified patterns and relationships. The data's validity was ensured using the criteria of confirmability, dependability, transferability, and credibility. Credibility was established through member checks, negative case analysis, peer discussions, triangulation, and persistent observation. Transferability was supported by providing detailed and systematic reports for application in similar contexts, while dependability and confirmability were maintained through an independent audit of the research process.

RESULTS AND DISCUSSION

General Description

Data Description

School Vision

a. The vision of SMP Negeri 2 Remboken is:

"The realization of students who have faith, noble character, knowledge, character, and are able to compete in the global era through quality and environmentally friendly learning."

This vision reflects the school's aspirations to produce graduates who are not only superior in the academic field, but also have religious character, discipline, care for the

environment, and are ready to face the challenges of technological developments and changing times.

In its implementation, the school's vision is used as the basis for all educational activities, including in the management of facilities and infrastructure. The principal ensures that each school program supports the realization of effective learning and a conducive environment according to the direction of the vision.

b. School Mission

To achieve this vision, SMP Negeri 2 Remboken has set several missions as operational guidelines, namely:

1) "Instilling faith and piety in God Almighty through religious activities at school.
2) Improving the quality of learning by making optimal use of educational facilities and infrastructure.
3) Creating a clean, healthy, and comfortable school environment as a fun place to learn.
4) Developing students' abilities in science, technology, art, and skills according to their respective potentials.
5) Fostering the character of discipline, responsibility, and the spirit of mutual cooperation among school residents.
6) Establish cooperation with parents and the community in supporting education quality improvement programs".

This mission is the basis for the preparation of school work programs every year, including planning, procurement, and maintenance of educational facilities and infrastructure. The principal strives to ensure that the management of facilities always supports the implementation of the mission in real life in the field.

c. School Objectives

Based on the vision and mission above, the educational objectives at SMP Negeri 2 Remboken are:

1) "Producing students who have noble character, character, and high discipline.
2) Improving the quality of student learning processes and outcomes through active, creative, effective, and fun learning.
3) Optimizing the use of educational facilities and infrastructure to support the quality teaching and learning process.
4) Creating a child-friendly, safe, and environmentally friendly school.
5) Improving the professional competence of teachers and education staff through training activities, workshops, and cooperation with related agencies.
6) Preparing graduates who are able to continue their education to a higher level and have basic skills to face life in society".

This goal is the direction of school policy in improving the quality of education. Each school program and activity is designed to support the achievement of these goals, including through the management of facilities and infrastructure that is effective, efficient, and sustainable.

Description of Research Data

This research is focused on three main aspects, namely:

1) The principal's proficiency in managing or managing educational infrastructure.
2) The principal's creativity in management.
3) Planning the management of infrastructure facilities..

These three focuses are the basis for analysis in describing the real practice of facilities and infrastructure management at SMP Negeri 2 Remboken.

Facilities and Infrastructure Management Planning

The findings in the study represent the planning of facilities and infrastructure at SMP Negeri 2 Remboken carried out in a systematic, participatory, and need-based manner.

The principal together with the management team, teachers, and school committee prepare the School Activity Plan and Budget (RKAS) every year. The planning process begins with needs identification activities, namely collecting data on the condition of existing facilities and submitting new needs based on learning priorities.

Planning also pays attention to the availability of BOS funds and community support. Every procurement of new facilities is always preceded by coordination meetings and discussions with the teacher council and school committees to ensure suitability with budget needs and capabilities.

In addition, the principal made a routine maintenance schedule and a light facility repair program by involving school residents. This participatory approach increases a sense of responsibility and ownership of school facilities.

In general, the planning process for the management of facilities and infrastructure in this school has applied the principles of effectiveness, efficiency, and transparency that support the realization of sustainable quality of education.

Principals' Creativity in Facilities and Infrastructure Management

Limited resources are not an obstacle for school principals to continue to innovate. Based on the results of interviews and observations, the principal showed high creativity in managing facilities and infrastructure through the following strategies:

1) Utilization of local resources, such as using simple materials for facility improvements and making environment-based learning aids.
2) Cooperation with the community and school committees, both in the form of manpower, material, and additional funds for the procurement of certain facilities.
3) Optimize BOS funds, by setting priority needs and avoiding budget waste.
4) The use of simple technology, such as the creation of a computer-based inventory system to record and monitor the use of goods.

The principal's creativity is also seen in the way he motivates teachers to innovate in using learning facilities, such as modifying learning media and beautifying classrooms with student work.

With this creativity, the limitations of facilities are not a significant obstacle. Instead, the spirit of collaboration and innovation that grows among school residents creates a positive work culture and supports the improvement of the quality of education.

School Principal's Ability to Organize Facilities and Infrastructure

School principals have good managerial skills in organizing school facilities and infrastructure. He formed a special team to manage facilities and infrastructure consisting of teachers and administrative staff. Each team member has specific responsibilities, such as inventory recording, maintenance, and supervision of facility use.

The organizing system works effectively because the principal implements clear coordination and division of tasks. Every activity in the use of the facility is documented through an inventory book and periodic reports. In this process, the principal emphasizes the principles of transparency, discipline, and responsibility.

In addition, the principal also conducts routine monitoring and evaluation, both on the condition of the facilities and on the effectiveness of their use in the learning process. If damage or new needs are found, immediate follow-up is carried out through internal school meetings.

The principal's ability to organize shows the implementation of good management functions: planning, organizing, actuating, and controlling (POAC), which is in line with modern education management theory (Mulyasa, 2021).

With an effective and participatory organizing pattern, all school residents have a role in maintaining, maintaining, and utilizing facilities and infrastructure optimally.

The Impact of Facilities and Infrastructure Management on the Quality of Education

The implementation of good management of facilities and infrastructure at SMP Negeri 2 Remboken has a real impact on improving the quality of education. The school environment becomes cleaner and more organized, learning activities take place more effectively, and teachers' morale increases.

Teachers feel more motivated because school facilities can support varied learning methods. Students are also more enthusiastic in participating in learning activities because the classroom is neatly arranged and the school environment is comfortable.

In addition, cooperation between committees, principals, and teachers strengthens transparency and accountability in facility management, so that public trust in schools increases.

The data obtained from this study represents the management of infrastructure facilities that are well planned, creatively managed, and professionally organized to contribute significantly to the development of the quality of education at SMP Negeri 2 Remboken.

Data Analysis

7) Facilities and Infrastructure Management Planning

The principal carries out systematic planning through the following stages:

a. Identify needs by analyzing the real condition of school facilities and comparing them to ideal standards;
b. Setting specific and measurable goals according to the results of needs analysis;
c. Data collection and analysis of the situation through observation and documentation;
d. Formulation of alternative strategies such as routine maintenance, gradual procurement, and optimization of BOS funds;

e. Evaluation and selection of alternatives to determine the most efficient strategy;
f. Preparation of operational plans, including schedules and division of tasks;
g. Ongoing implementation and evaluation to ensure the effectiveness of the plan.

Planning is carried out by involving teachers, staff, and school committees. The results show that this participatory approach is able to increase a sense of shared responsibility for school facilities.

8) Principal's Creativity in Management

The principal's creativity comes in several forms:

a. Originality, through new ideas such as the use of second-hand goods for props;
b. Flexibility, in adapting policies to budget constraints;
c. Elaboration, by preparing a detailed activity plan;
d. Curiosity is high, by looking for references and good practices from other schools;
e. The courage to take risks, in allocating funds strategically;
f. Independence and confidence, in making decisions without dependence on external parties.

This creativity has a positive impact on teacher motivation and student learning comfort. The school environment becomes cleaner, organized, and productive even with limited resources.

9) School Principal's Ability to Organize

The principal's abilities can be seen from:

a. Identification of activities and division of tasks based on the competence of each teacher and staff;
b. Preparation of a clear organizational structure, complete with division of authority and responsibility;
c. Active coordination through regular meetings and open communication;
d. Periodic maintenance involving all school residents;
e. Continuous evaluation of the condition of facilities and infrastructure.

This system results in accountable, transparent, and orderly school governance. The results of the study show that a strong organization is able to support the improvement of the efficiency of the use of facilities and foster a sense of ownership of the existing facilities by school residents.

Facilities and Infrastructure Management as a Determinant of Education Quality

From the results of the study, it can be seen that the success of the teaching and learning process at SMP Negeri 2 Remboken is greatly influenced by the existence of facilities and infrastructure. Complete school facilities are able to create a comfortable, efficient learning atmosphere, and provide more meaning for students. This view is in line with the opinion of Bafadal who states that the management of facilities and infrastructure is a form of appropriate and efficient use of all educational facilities, so that educational goals can be achieved optimally.

In the context of education quality, the management of facilities and infrastructure at SMP Negeri 2 Remboken has been carried out by paying attention to the principles of education management put forward by Terry, namely "planning, organizing, actuating, and

controlling". These four management functions are a reference for school principals in carrying out all school facilities and infrastructure management activities.

The availability of sufficient facilities, including digital learning and computer labs, affects student learning motivation, teacher professionalism, and learning outcomes. Thus, the quality of education in schools increases gradually along with the increase in the effectiveness of the use of facilities and infrastructure.

Systematic and Needs-Based Planning of Facilities and Infrastructure Management

Planning is the initial and most strategic stage in the management process. Based on the results of the research, the principal at SMP Negeri 2 Remboken carried out planning by analyzing the needs of facilities and infrastructure, identifying existing conditions, and setting procurement priorities based on the level of urgency. The planning involves various parties, including teachers, administrative staff, and school committees.

This approach is in line with the concept of need-based planning conveyed by Wahyudi (2024), where the planning of facilities and infrastructure must be prepared based on real needs supported by field data. The involvement of school stakeholders also shows that planning is carried out in a participatory manner, in accordance with the principles of school-based management (SBM).

School principals are able to integrate short-term and long-term plans. The short term includes the repair of basic facilities such as toilets, classrooms, and lighting, while the long term is focused on the procurement of computer laboratories and multimedia rooms. This reflects the ability of school principals to set the scale of priorities and the use of limited resources to achieve the goal of quality education in a sustainable manner.

Careful planning has an impact on the efficiency of the use of BOS funds and assistance from the Minahasa Regency Education Office. The principal has also implemented an internal evaluation mechanism for the implementation of the plan, which shows a continuous management cycle (planning–doing–evaluating).

Principal's Creativity in Managing Facilities and Infrastructure

Creativity is the ability of the principal to generate new, innovative, and relevant ideas to the needs of the school. In this study, the principal showed high creativity in utilizing limited facilities and infrastructure. For example, by holding a "school gotong royong" program to improve facilities, utilize used goods as a learning medium, and build cooperation with the surrounding community.

These findings are in line with the theory of transformational leadership by Bass and Riggio (2019), where a creative and inspirational leader can drive positive change through motivation and example. Creative school principals are able to mobilize school residents to actively participate in the management of educational facilities.

In addition, creativity can also be seen from the principal's efforts to integrate the use of technology in the learning process. Although ICT facilities are still limited, the principal took the initiative to conduct simple training for teachers to be able to operate computer devices, especially in the face of the computer-based national assessment (ANBK). This

shows the ability of school principals to turn challenges into opportunities for developing teacher and student competencies.

Thus, the creativity of school principals plays an important role in creating management efficiency, improving the quality of educational services, and fostering a sense of ownership of school facilities among teachers and students.

School Principal's Ability to Organize Facilities and Infrastructure

The ability of school principals to organize facilities and infrastructure is one of the keys to the success of education management. The results of the study show that the principal has established a clear organizational structure, such as appointing teachers as facilities coordinators, laboratory operators, and computer technicians. This division of tasks shows the application of organizing management principles as explained by Purwanto (2021), namely the placement of the right person according to his expertise (the right man in the right place).

In addition, the principal also implements an orderly inventory system of facilities and infrastructure and conducts periodic monitoring. Each school asset is recorded and checked periodically to ensure it remains in good condition. This kind of management is in accordance with the opinion of Sutarto (2022) who emphasizes the importance of planning, coordination, and evaluation in organizing infrastructure facilities so that the use of facilities is effective and efficient.

This organizing activity also involves collaboration with the school committee and the surrounding community. Although the community's contribution is still limited, the existence of two-way communication between the school and the community shows a synergy that can be further developed to strengthen the social role of education in the surrounding environment.

With good organizational skills, school principals not only ensure that facilities and infrastructure function optimally, but also create an orderly, disciplined, and collaborative work culture among educators.

The Relationship between Facilities and Infrastructure Management and Education Quality

Conceptually, the quality of education includes various indicators such as learning effectiveness, teacher competence, student participation, and academic achievement. At SMP Negeri 2 Remboken, the improvement in quality can be seen from the increased enthusiasm for student learning, the involvement of teachers in innovative activities, and the creation of a clean and comfortable school environment.

This strengthens the opinion of Mulyasa (2021) that good management of facilities and infrastructure has a direct effect on improving the quality of education, because educational facilities are the main medium in achieving learning goals.

The availability of facilities such as computer labs, digital media, and comfortable learning spaces helps students understand the material faster and teachers more easily apply active and innovative learning methods. Thus, effective management of facilities and infrastructure directly contributes to improving learning outcomes and student achievement.

CONCLUSION

The research at SMP Negeri 2 Remboken found that the principal systematically planned and managed facilities and infrastructure to align with the school's vision, involving all stakeholders to ensure effective procurement and maintenance. Despite limited resources, the principal's creativity—leveraging community cooperation, local materials, and teacher training—helped optimize infrastructure management. The principal's organization of assets and regular monitoring improved operational efficiency and learning quality, resulting in better student outcomes, enhanced teacher professionalism, and a stronger school reputation. Success was supported by visionary leadership, collaborative teachers, local government backing, and a cooperative culture, while challenges like limited funding, internet access, and technical training were addressed through innovation and partnership. Positive impacts included improved learning results, teacher motivation, environmental cleanliness, independent ANBK implementation, and community trust. Future research could expand this study quantitatively or comparatively to develop more effective and adaptive facility management models across diverse educational settings.

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