

THE MANAGEMENT OF EDUCATIONAL FACILITIES: THE PERSPECTIVE OF ERGONOMIC AND AESTHETIC PHILOSOPHY

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ABSTRACT

The paper aims to formulate a solution to the problem of how philosophical aspects are applied in education management, especially in the management of educational facilities and infrastructure after the Covid-19 pandemic. From the results of the general problem analysis, seven problems were identified, namely: (1) Planning of Educational Facilities and Infrastructure, (2) Organization of Educational Facilities and Infrastructure, (3) Implementation of Management of Educational Facilities and Infrastructure, (4) Supervision of Educational Facilities and Infrastructure, (5) Utilization of Educational Facilities and Infrastructure, (6) Ergonomics Problems of Educational Facilities and Infrastructure, and (7). Aesthetic Problems of Educational Facilities and Infrastructure. The method used in this study was a literature study on educational management based on various philosophical and management theories. The results of the study found that the ergonomic and aesthetic management in various management of educational facilities and infrastructure after the Covid-19 pandemic included five principles, namely unity, harmony, balance, contrast, and symmetry. In the learning process, this quality can be implemented in a classroom arrangement. This description proves that aesthetics, as a branch of philosophy, contributes to creating fun and progressive learning.

Keywords: *educational facilities management, ergonomic, aesthetic, philosophy*

1. INTRODUCTION

Every formal and non-formal education unit is required to provide facilities and infrastructure to meet educational needs in accordance with the growth and development of physical potential, intellectual intelligence, social, emotional, and obligation of learners, as per Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System. In order to implement education effectively and achieve defined goals, the management of facilities and infrastructure tries to provide organized learning facilities (Indrawan, 2015). Students can learn as effectively as possible if the management of infrastructure in educational institutions is upheld and its use is made clear because facilities and infrastructure are the most crucial factors.

The management of facilities and infrastructure is even more important in educational institutions (schools) in the present Covid-19 epidemic so that school principals can determine what purchases and infrastructure should be employed in accordance with school needs. Infrastructure and facilities are crucial components of education management because they facilitate students' assimilation of the information teachers impart, enhancing the effectiveness of the educational process. Learning outcomes for students may be impacted by the Covid-19 Pandemic's poor infrastructure and amenities. The management of education in the

midst of this pandemic outbreak must therefore emphasize the concept of quality as a whole. There needs to be a strategy that guarantees accessibility, the idea of education, and optimal infrastructure so that the quality of our education, which is moving in the right direction, can function properly in any circumstance.

Infrastructure and equipment utilized in educational settings, such as buildings, classrooms, furniture, tables, and seats, as well as teaching aids, are examples of this. Infrastructure and educational facilities include things like schoolyards, courtyards, gardens, and roadways that indirectly enhance the teaching process. If buildings and infrastructure are employed specifically for teaching and learning activities, such as schoolyards becoming sports fields or school gardens becoming classrooms, then these elements shift into the role of educational facilities (Nasrudin & Maryadi, 2019; Sinta, 2019). They put stress the value of preparation so that activities may occur frequently. Educational facilities include things like buildings, classrooms, tables, and seats, as well as instructional aids and media that are specifically intended to support the educational process, particularly the teaching and learning processes. Facilities such as courtyards, gardens, school gardens, and roads connecting to schools are examples of educational infrastructure since they indirectly promote the educational or learning process (Beare, Caldwell, & Millikan, 2018).

It is mandatory for education unit administrators to complete educational facilities and infrastructure as it is one of the national education requirements that must be completed. Every formal and non-formal education unit provides facilities and infrastructure that meet educational needs in accordance with the growth and development of students' physical, intellectual, social, emotional, and psychological potential, according to Law No. 20 of 2003 concerning the national education system's article 45 paragraph 1. Buildings, classrooms, chairs, tables, and teaching materials are only a few examples of the facilities and infrastructure that are employed directly in the teaching and learning process. Facilities that indirectly aid in teaching, such as courtyards, school gardens, gardens, and roads connecting to schools, are referred to as educational facilities and infrastructure (Khikmah, 2020).

Using all educational assets and infrastructure in an effective and efficient manner is the goal of management of educational facilities and infrastructure (Hassanain, Al-Zahrani, Abdallah, & Sayed, 2019). In order for educational facilities and infrastructure to contribute optimally and meaningfully to the development of the educational process, management of educational infrastructure is entrusted with overseeing and maintaining them (Filardo, Vincent,

& Sullivan, 2019). Planning, acquiring, distributing, storing, maintaining, using, inventorying, and disposing of educational facilities and infrastructure are eight actions that make up facilities and infrastructure management (Romlah & Latief, 2021).

In order to provide favourable conditions or an atmosphere for learning, the management of educational facilities is crucial. The effectiveness of management activities can be measured in terms of how well they contribute to teaching and learning activities and how well they make use of the infrastructure that supports them. Maintenance is a crucial component of managing educational infrastructure and facilities. The task of managing and arranging the infrastructure and facilities in educational settings ensures that they are always in good shape and available for use in attaining educational objectives (Dewi, Windoro, & Pura, 2021).

The management of educational facilities and infrastructure is a collaborative process of making effective and efficient use of all educational assets and infrastructure (Lee, Ro, & Yoo, 2017; Uotila, Saari, & Junnonen, 2020). Planning, carrying out, and controlling policies and infrastructure is how the management of educational facilities and infrastructure is done. There are three ways to ensure that the upkeep of educational infrastructure is done as effectively as possible: (1) the school facilities and infrastructure team must conduct a more in-depth needs analysis when planning the work program for facilities and infrastructure; (2) the educational infrastructure team must collect data for damaged facilities and infrastructure; and (3) the educational infrastructure team must conduct data analysis for facilities and infrastructure, and (3) The principal of the school needs to be even more diligent in performing oversight and educating all students about the need of preserving the school's infrastructure and amenities.

As a result of the Covid-19 pandemic, the following mechanisms are in place to manage facilities and infrastructure in order to support the quality of learning: (1) planning and purchasing facilities and infrastructure is done with the intention of knowing all the needs needed by schools by prioritizing health protocols, planned from the beginning of the year by looking at the evaluation on the previous year, (2) choosing items based on needs, then distributing the purchased items to each classroom and student, was the method used to disperse activity infrastructure. (3) staff members assigned to record items acquired have held and coded each item listed in the inventory book list for the activity's facilities and infrastructure inventory, (4) all school citizens must participate in keeping the facilities owned by the school, with the use and maintenance carried out optimizing the items held by the school and maintaining it continually so that these items can be used for a long period. (5) dismantling infrastructure and amenities before submitting a formal report to the school administrator when these things are broken and useless.

It is frequently seen that maintenance of the academic infrastructure in schools is not going properly. Planning, coordinating, implementing, and supervising activities are truly essential to regulate maintenance so that it can function smoothly. Therefore, the maintenance must be managed well. This paper aims to formulate a solution to the problem of how philosophical aspects are applied in education management, especially in the management of educational facilities and infrastructure after the Covid-19 pandemic.

2. LITERATURE REVIEW

2.1 Planning

Planning is a course of action that will be done to accomplish a specific goal within a specific time and location. Planning may also be referred to as the expectation of something that will happen since it must be the best procedure possible. Planning is a mental process, both in outline and in-depth, of an activity or job carried out to reach the best and most inexpensive certainty (Helda & Syahrani, 2022). The following requirements must be met during the planning stage: (1) creation of a schedule for routine equipment maintenance and repairs; (2) use of service manuals from equipment manufacturers in making periodic preventive maintenance; (3) creation of a list of parties authorized to handle maintenance and repairs or their representatives; (4) carrying out routine maintenance and repairs that are typically handled through educational programs; (5) describing the procedure to be followed in the event of emergency maintenance and repair to equipment; (6) planning for significant (significant) maintenance and repairs, and (7) maintaining records or reports regarding maintenance and repair (Sanoff, 2017).

2.2 Organization

The fundamental function of management is organizing, which is done to control and manage the human element of labour. People are the most crucial component because they can perform related duties when organized (Barr & McClellan, 2018). The steps for preparing the maintenance organization include: (1) organizing meetings with the principal, teachers, school caregivers, student representatives, committee members, and community representatives, (2) emphasizing the value of teamwork in preserving the school's environment and building, (3) explaining to participants the range of regular (daily, weekly) and irregular maintenance chores, (4) displaying a typical organizational structure for pattern maintenance and soliciting feedback on the structure, (5) discussing responsibility, authority, and analysing the outcomes, (6) outlining the individuals who will occupy the organizational framework (7) particularly for routine upkeep, followed by the division of jobs or yard areas into those that belong to each class/for the pupils and teachers who teach them, (8) informing all participants of the outcomes of the task division (Ahmad, 2021).

Organizing is the act of creating an organizational structure that is compatible with the aims of the organization, the resources it owns, and the environment in which it operates (Siswanto & Hidayati, 2020). Facilities and infrastructure management functions are grouped together in the activity of organizing facilities and infrastructure for educational purposes. The organization of facilities and infrastructure includes setting up the organizational structure of facilities and infrastructure managers, dividing work tasks/job descriptions, setting tools and practical materials, and setting practical activities if the organization follows the functions and tasks assigned.

2.3 Implementation

The implementation will go smoothly if all participants are really committed and actively engage in accomplishing the objectives of

educational institutions. Enthusiasm and motivation play a crucial role in ensuring that members of the institution put the needs of the institution before their own, by agreeing on the types of activities performed for routine maintenance (daily, weekly), assigning tasks and areas to students, teachers, principals, and school caretakers, and describing the use of checklists in maintenance implementation (Elpina, Marzam, Rusdinal, & Gustituati, 2021).

2.4 Supervision

The goal of supervision is to look over the planned actions. Control is an instrument for directing individuals to work toward the desired outcomes and is focused on the intended object (Goffar & Agustin, 2021). Evaluation is carried out to determine how successful the therapy was, how efficient and effective the maintenance work was carried out, and how exceptional the program or treatment plan is. The evaluation process must involve evaluations of treatment outcomes and treatment plans (Aisah, Achmad, Khoeriah, & Sudrajat, 2021). Reports on the upkeep and restoration of institutional infrastructure are also completed. The results of a thorough examination of the maintenance and repair tasks reported to management are included in the activity report.

2.5 Utilization

This component changes to become an educational facility if it is used specifically for the teaching and learning process, such as a school garden to teach biology or a schoolyard to serve as a sports field. Infrastructure transforms into an educational facility when it serves as a means. When infrastructure performs as a facility, it indicates that it becomes a fundamental element. Proper management of educational infrastructure and facilities is necessary to support teaching and learning activities. Planning, implementing, and regulating organizational resources to achieve objectives effectively and efficiently is management in its broadest definition. Even in schools with infrastructure that satisfies standards, the utilization of infrastructure facilities in the learning process must be improved as part of a continuous improvement in service quality to satisfy customers' needs (Cindy, Sugiyono, Usman, & Herwin, 2022). The effectiveness of learning is also impacted by how effectively the learning infrastructure is used and managed (Nurhayati, 2021).

The person in charge of managing infrastructure facilities has the following responsibilities: managing infrastructure facilities, planning educational facilities and infrastructure, planning and managing the need for tools and materials, proposing the need for tools and materials as educational facilities and infrastructure, and informing the school principal of the status of facilities and infrastructure. The principals' role is significant and broad, involving leading and inspiring their staff. Facilities and infrastructure managers will benefit immensely from the positive encouragement and attention provided by the school principal in carrying out their responsibilities as effectively as possible. In addition to receiving positive reinforcement, they will also feel respected in their work (Jajang, Purwanto, Nanda, & Novriansyah, 2021). The first action taken in an effort to enhance the management of owned items so that they are properly maintained is inventory. The inventory serves as a tool or set of guidelines for calculating the wealth of a school in material form that can be valued financially, as well as for maintaining and fostering an

orderly administration of facilities and infrastructure owned by schools, saving school finances during the procurement, maintenance, and removal of school facilities and infrastructure, and facilitating supervision and control of goods (Elyani, 2022).

3. METHODS

Library research was used to carry out this investigation. The method of research utilized in this study is library research, in which researchers gather information from books, manuscripts, or journals that are pertinent to their topic of interest or from works of literature. This kind of library research can be understood as a process of reading, noting, and analyzing research materials in order to gather library data (George, 2008). In other words, library research is a study done to address a problem that already exists. The information was gathered using data from studies on the administration of school infrastructure and facilities, ergonomics and aesthetics from a philosophical perspective, and a critical and in-depth assessment of pertinent literature material. In this paper, the researchers used descriptive qualitative methods in analyzing the data. The data obtained from books and journals were thoroughly described qualitatively. The data analysis began with finding sources of information by reading several books and journals and understanding and then describing some of the information that obtained from different book opinions with the similar theme. Then, the researchers described the information retrieval through literature study and drew conclusions.

4. RESULTS & DISCUSSION

4.1 Facilities and Infrastructure Management

The teacher council meeting is used to create the planning for infrastructure and facilities. The teacher council and the vice principal for infrastructure facilities then develop the planning for educational facilities, which is subsequently submitted to the school principal. The principal then determines which is more important and should come first. The school follows these procedures when creating the plan for educational facilities and infrastructure: (1) The school calls a meeting to which all members of the school are invited; (2) Each member of the meeting develops a plan for the need for educational facilities in accordance with the needs of educational facilities in their respective fields; (3) The facilities that have been proposed are chosen by taking into account the available funds; (4) creating a strategy for the construction of infrastructure and educational institutions. The plan for the educational facility covers purchasing, funding sources, usage, usage capacity, maintenance, and repair.

The following is the procedure for acquiring educational facilities: (1) identifies the necessary facilities; (2) each manager of educational facilities compiles a list of requests for educational facility needs; and (3) a representative of the facilities submits the list to the school principal. If the purchase cannot be made with the funds on hand at the school, a request is made for assistance from the education office. Purchases made with funds from the school committee are carried out directly by the school in accordance with the agreement reached after discussions with the committee,

followed by purchases made with funds from the district, city, or province occasionally through specific allocation funds and carried out using a self-management system other times, schools will only accept purchases made by the education office.

Before the teacher can use school facilities and infrastructure such as learning media, users must first notify or request permission from the staff. The staff then registers the borrower's identity and also provides instructions on how to use the facility. The item is returned to the facilities and infrastructure staff after usage, but the arrangements for its use in the library room, health unit room, computer lab room, and practice rooms are left to the person in charge of the room. Then, creating a maintenance card, offering storage spaces for goods based on their size (rooms and cupboards), and cleaning and re-stowing tools after use are all ways that educational facilities are maintained.

The process for disposing of facilities goes as follows: (1) gathering information on the items to be deleted in accordance with applicable regulations, (2) submitting the goods to the central/regency/provincial government, and (3) after obtaining permission from the government as demonstrated by a special decree for deleting goods no longer in use. After that, the disposal is completed in accordance with applicable laws.

After purchasing school supplies, administrators make an inventory of everything the school has bought with either government money or money from the school committee. The following stages can be used to implement the school inventory: (1) entered and recorded in the master book for inventory, (2) entered and recorded in the acceptance book for educational facilities, and (3) recorded and entered in the inventory class book, such as non-consumable commodities, buildings, land, machines, computers, and electronic equipment. Each unit has an inventory book that includes: (a) a record book for consumable items and (b) a record book for products that have not been consumed. They are recorded in the goods release book each time they are taken or utilized by each individual who needs them, (c) a logbook for loaned items.

4.2 Ergonomics Philosophy Perspective

Smith's research report (2013), demonstrates how both internal and external environmental design have a significant impact on learning. The internal environment is developed by taking ergonomic factors into consideration, such as the facilities used, the arrangement of the facilities, and the circumstances of the internal environment, which has a significant impact on how well students learn and achieve their goals (Soltaninejad, Babaei-Pouya, Poursadeqiyan, & Feiz Arefi, 2021). Classroom furniture is a crucial component of a comfortable learning environment for students in educational institutions (Díaz-López, Serrano-Jiménez, Verichev, & Barrios-Padura, 2022).

Physical Elements in the Educational Setting include lighting, temperature, and lighting. The findings of many investigations concerning lighting lead to the following (Capotescu, 2019):

- Glaring light has a negative impact on students' academic performance.
- Outside noise disrupts educational activities.

- Learning activities and student learning outcomes are impacted by inadequate ventilation.

Good lighting is when our eyes can comfortably and clearly view everything around us. The recommended illumination intensity for classes utilizing LCD media was 250 to 300 lux (Sutajaya, 2016). The lighting intensity in the workplace where employees read and/or write must not be less than 300 Lux, according to Law No.1/1970 concerning Work Safety and Regulation of Ministry of Labour No. 5/2015 (Syakbania & Wahyuningsih, 2017).

Next, the thermal comfort of students is reportedly impacted by the temperature and humidity in the classroom (Ismiyasa, Putra, Tirtayasa, & Purnawati, 2017). A drop in a student's academic performance will be impacted by a drop in their body temperature. For study purposes, the air is between 22 and 29.5 degrees Celsius and between 40% and 60% relative humidity, according to Kwok's research findings from 1997. A study revealed that the optimal temperature range for experiencing thermal comfort is between 24.1 and 24.9 Celsius Degree (Bora, 2017). Wijana & Sanusi (2014) found that students perform better when the air temperature is between 20 and 25 degrees Celsius when completing assignments in math classes that need attention and logical reasoning as well as language classes that require concentration and understanding. According to a previous study, a classroom's temperature environment has an impact on student's academic performance (Anggraeni, 2017). As a result, it becomes crucial to take thermal comfort into account in the classroom in order to provide a productive learning environment and deliver positive student outcomes. Additionally, a number of recent studies have demonstrated a favourable correlation between classroom attributes, such as temperature conditions, and student achievement (Wargocki, Porras-Salazar, & Contreras-Espinoza, 2019)

According to (Sala & Rantala, 2016), classroom noise undoubtedly interferes with students' ability to study. Shaaban & Abouzaid (2021) demonstrated in their research that outside noise in London can negatively affect test scores on primary school exams. This study also demonstrates that outside noise has a significant detrimental impact on speaking abilities in class. Noise is any sound that is unwelcome or upsetting. According to the Decree of the Minister of State for the Environment No. 48 of 1996, a classroom or lecture hall should have a noise level between 30 and 40 dBA. The threshold of noise in the workplace for 8 hours of exposure to workers for 8 hours a day = 85 dBA, according to Law No. 1 of 1970 concerned work safety and Regulation of Ministry of Labour No. 5/2015 concerning OHS in the work environment.

4.3 Aesthetics Philosophy Perspective

The learning process benefits greatly from an enjoyable learning environment. Comfortable physical and psychological surroundings have an impact on one's capacity to focus and foster creativity. It is the responsibility of everyone involved in the educational process, including administrators, staff, students, and instructors in particular, to foster this welcoming environment. One of the elements in creating a comfortable learning environment is the beauty of the soul and the physical environment. Aesthetics, a subfield of philosophy, is the study of beauty. The pursuit of beauty

in the educational process can take many forms, including the aesthetic appeal of school buildings, classrooms, learning environments, instructional materials, instructor appearance or performance, teacher services, employee services, and communication (Marini, 2021; Wassiliwizky & Menninghaus, 2021). If all of these elements are combined and presented in a lovely way, all school parties will feel at ease and "at home" at school. In actuality, efforts still need to be made to preserve the beauty of the school, the beauty of the classroom, the beauty of service, and the beauty of communication. It is necessary to think of the school as a separate home, whose beauty and harmony must be preserved.

According to the idea of beauty in schools, which includes beauty as an idea of goodness and enjoyment, learning requires beauty and must start with an idea of goodness, including thoughts of compassion in the form of intentions and goals for carrying out the learning process (Tjoe, 2016). When learning is considered in its purest form, its goal is to elevate human dignity and offer value for people in general, especially students. All stakeholders participating in the learning process will be happy if the learning objectives are met. The importance of adding value to oneself and one's community must be understood by both students and teachers. This is not the time for a student to comprehend the learning process in order to pass the class or even to achieve a high score over the required level of proficiency. Also, it is not the time for teachers to view the learning process as a time to abandon tasks without deliberate and thorough planning.

5. CONCLUSION

All parties and things involved in the learning process must form a unity, no one thing or party can be separated. For example, the teacher must unite with students and textbooks. That is, the teacher must blend in, and mingle with students, and textbooks as references must be well understood, and integrated within themselves. Teachers who do not understand the teaching material will create distance among students. As a result, the learning process will bore students so that it does not spur students' creativity to progress.

A learning process that has beauty is a learning process that has the quality of harmony, namely a learning process that contains conformity in the way of thinking and the goals to be achieved among all components of the learning process. The existence of this quality of alignment will simplify, expedite, and create comfort in the learning process.

The third quality is balance. Learning will be fun if there is a balance of thinking skills, a balance of treatment, and a balance of giving opportunities for all parties. The ability to think, treat, and give one-sided opportunities will create an unpleasant atmosphere.

The fourth quality is contrast, the learning process will be fun if there is a contrast, and there are differences of opinion that are based and constructive. The existence of this difference will liven up the learning atmosphere, so it is not boring.

The fifth quality is symmetry. In the learning process, this quality can be implemented in the classroom arrangement. This description proves that aesthetics as a branch of philosophy contributes to creating fun and progressive learning.

As everyone involved in learning believes that education is a process of enhancing human dignity and adding value to people, it must be conducted with sincerity and kindness. This is one way in which the philosophy of beauty/aesthetics contributes to the fun and progressive learning. This can be done in two ways, notably by incorporating ergonomics and aesthetic management in the management of educational facilities and infrastructure.

To sum up, it is a goal to always create an environment and infrastructure that is appealing and supportive of learning. The attributes of unity, harmony, balance, contrast, and equivalence must be taken into consideration in all facets of the learning system in order for the process to be joyful and progressing.

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