

School Facilities and Infrastructure Management in Improving Education Quality

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Abstract: The purpose of this study is to know the Management of School Facilities and Infrastructure in Improving the Quality of Education. This study uses a comparison journal related to Facilities and Infrastructure in the field of education. Based on the results of a review of libraries from various countries in the world, the authors found that school facilities and infrastructure can improve the quality of education. Therefore, the school is expected to manage the facilities and pre-retirement in meeting the needs. Facilities and infrastructure greatly affect the ability of students in the learning process. It can be said that quality school facilities and infrastructure help attract and retain teachers, support improved student outcomes, and have a positive economic impact on the community. And it can be known that complete school facilities and infrastructure can determine the number of students. Therefore, the role of facilities and infrastructure is very important to attract the attention of the community so that the school has fans. The importance of school facilities and pre-retirement management in improving the quality of education attracts researchers to review, and this article to test how the management of facilities and infrastructure in improving the quality of education.

Keywords: education quality, education management, facilities and infrastructure management, literature review.

I. INTRODUCTION

Education is one of the basic needs for humans. Education can be one way for people to achieve their goals (Akareem & Hossain, 2012). School as educational institution is basically established as a means for the teaching and learning process (Akhiehiero, 2011). As the new demands on the education system, the education system is required to focus more on emphasizing the quality of education, especially on facilities and infrastructure. These shifts and changes occur not only in developed countries, but also in developing countries in the world. Educational facilities and infrastructure are supporting matters that facilitate the teaching and learning process in school. Facilities and infrastructure include school buildings, equipment including teaching aids, books, typewriters, computers and laboratory equipment (Akhiehiero, 2011; Herwan, Aswandi, & Chiar, 2018).

Facilities and infrastructure become one of the indicators of the quality of education because Facilities and Infrastructure in education is one of the determining factors in the success of education. The completeness of educational facilities and infrastructure in school greatly influences the effectiveness of learning, both in and out of the classroom (Darmastuti, 2014). However, in many schools in remote areas, the lack of

facilities that support learning is still very often found (Vincent, 2006).

Related to this, there are several studies that have studied the impact of school facilities and infrastructure in improving the quality of education in various countries, such as in India (Bhuniah, Shit, & Dubai, 2012), Indonesia (Alkadri, Ningrum, Santoso, & Afriansyah, 2017) (Darmastuti, 2014) (Marmoah, Adela, & Fauziah, 2019), South Africa (Amsterdam, 2013), Netherlands (Kok, Mobach, & Omta, 2011), Kenya (Ndirangu & Udoto, 2011), Bangladesh (Akareem & Hossain, 2012), Cambodia (Chansopheak, 2009), Russia (Zhironova & Absalyamova, 2013), and United States (Wagner, 2010) (Murillo, Román, & improvement, 2011).

Educational facilities are all forms of facilities or supportive learning stuffs, such as classrooms, learning media, tools, materials and others that are used to support the educational process at school. While infrastructure is all forms of things that work indirectly in supporting the teaching-learning process, because it includes land, yards, school buildings, roads to schools, sports fields, water, telephones, and furnitures (Herwan et al., 2018). Facilities and infrastructure greatly affect the ability of students in the learning process (Herwan et al., 2018). Good school facilities and infrastructure will attract and maintain teacher welfare, support the improvement of student outcomes, and have a positive economic impact on society. And it can be concluded that complete school facilities and infrastructure can determine the quantity of students (Vincent, 2012). Thus, the role of facilities and infrastructure is very important as a school attraction in the people's eyes (Alkadri et al., 2017).

The process of achieving educational goals needs to be supported by good quality resources, both human and material, and facilities and infrastructure is one of the material resources. Educational activities in schools that are not systematic often become a factor in the process of education. Every educational institution knows that the learning process in schools will never be static, but will always dynamically follow the progress of science and technology which is growing rapidly. For this reason, school is required to improve the quality of education from all sides, including improving the quality of educational facilities and infrastructure. Because school facilities and infrastructure is one of the supporting factors in achieving the success of the teaching and learning process in school. And this can be achieved if adequate school facilities and infrastructure are accompanied by optimal

management (Nurbaiti, 2015). Based on the description above, it is necessary to know more deeply about “How is the school facilities and infrastructure management in improving the quality of education?”.

II. METHODOLOGY

This research can be categorized as a literature review study. The purpose of the literature review is to get a theoretical foundation that can support in solving research problems. This literature review focuses on the management of school facilities and infrastructure in improving the quality of education. The review process begins by utilizing a search engine, Google Scholar, to search for articles with keywords: “School Facilities and Infrastructure Management and Education Quality”. The article used is an article with a publication year from 2006-2020. The article criteria that will be used as literature in this study are as follows:

- 1) Qualitative and quantitative results from “school facilities and infrastructure management in improving the quality of education”
- 2) Research conducted in the world
- 3) This study uses English
- 4) Dissertations and theses are excluded

The steps in this Literature Review are:

Step 1: Formulate the Problem
Choose a topic that fits the issue and interest
The problem must be written completely

Step 2: Find Literature

- Find literature that is relevant to the research
- Get an overview of the research topic
- Research sources are very helpful if supported by knowledge of the topic.
- The articles provide an overview/summary of previous research.

Step 3: Data Evaluation

- Focus on articles’ findings/contributions related to the topics discussed
- Find the right data source as needed to support research
- Data can be in the form of qualitative data, quantitative data or a combination of both

Step 4: Analysis and Interpretation

Discuss and find and summarize the literature

Table 1. School facilities and infrastructure management in improving the quality of education

Author and Year of Publication	Title	Country	Methods	Sample	Findings
Noer Kamilatus Sholihah (2019)	Management of Education Facilities and Infrastructure	Indonesia	Qualitative	-----	Based on research conducted at SMK Negeri Mojokerto, it was found that adequate facilities and infrastructure strongly supported the educational process.
Gouri Sankar Bhuni, Pravat Kumar Shit, & Soumen Duary (2012)	Assessment of School Infrastructure at Primary and Upper Primary Level: A Geospatial Analysis	India	Quantitative	670 schools	Based on this research, the use of the SSA system to improve infrastructure shows that Geoinformat technology is a powerful tool for assessing infrastructure development zones, based on the relevant decision-maker can formulate an efficient basic infrastructure development plan for the area that can be achieved.
Sri Marmoah, Dhea Adela, Muna Fauziah (2019)	Implementation of facilities and infrastructure management in public elementary schools	Indonesia	Qualitative	-----	Based on the results of research on the implementation of management facilities and infrastructure at Bakipandeyan Elementary School, the school has implemented it well through three stages: (1) Procurement of facilities (2) Utilization and (3) Maintenance of facilities and infrastructure.
Christina Amsterdam (2013)	School Infrastructure in South Africa: Views and experiences of educators and learners	South Africa	Qualitative	-----	The results showed that educational facilities have an important role in supporting the learning process, the lack of facilities has a very negative impact on the learning process.
Putut jatmiko yuniawan, wahyudi, & m chiar (2020)	Manajemen sarana dan prasarana untuk meningkatkan mutu pendidikan di smk negeri 1 sintang (Facilities and Infrastructure Management to Improve the Quality of Education in SMK Negeri 1 Sintang)	Indonesia	Qualitative	-----	Based on the research findings, it can be concluded that: (1) Planning of facility and infrastructure programs is important for developing the quality of activities in schools; (2) The use of facilities and infrastructure must be used in accordance with the learning needs of each teacher that has been arranged and monitored; (3) Periodic monitoring and reporting of the use of facilities and infrastructure has been carried out directly by the school principal, (5) Obstacles faced relating to facilities and infrastructure include the costs of procurement and maintenance.

Herman B. Kok, & Mark P. Mobach, Onno S.W.F. Omta (2011)	The added value of facility management in the educational environment	Netherlands	Qualitative	-----	The results of this study indicate that facility services can directly influence the educational process
Husain Salilul Akareem & Syed Shahadat Hossain (2012)	Perception of education quality in private universities of Bangladesh: a study from students' perspective	Bangladesh	Quantitative	400	Findings from research at Private Universities in Bangladesh indicate that the quality of education greatly influences the characteristics of students. There is a strong correlation between the quality of education and student characteristics.
Keng Chansopheak (2009)	Basic Education in Cambodia: Quality and Equity	Cambodia	Quantitative	8 Elementary schools in Pursa and 135 Schools in the northeast of Cambodia	The results showed that the quality of education has an important role on student achievement. From this perspective, Cambodia's Elementary School is currently in the low-quality category, and student achievement is far from satisfying.
Galina I. Zhirnova, & Svetlana G. Absalyamova (2013)	Global innovation gap and quality of education	Russia	Qualitative	-----	The results of this study indicate that the quality of education as a determinant of development in overcoming innovation and social inequalities.
Daniel A. Wagner (2010)	Quality of education, comparability, and assessment choice in developing countries	United States	Qualitative	-----	The results showed that, most development institutions have begun to emphasize improving the quality of education. This review is paralleled by a significant increase in the use of educational quality assessments as a way to measure gains and losses.
F. Javier Murillo a & Marcela Román (2011)	School infrastructure and resources do matter: analysis of the incidence of school resources on the performance of Latin American students	United States	Quantitative	180.000 Grade 3 and Grade 6 students of elementary school from 3.000 schools from 15 countries	Results show that the availability of basic infrastructure and services (water, electricity, sewage), didactic facilities (sport installations, labs, libraries), as well as the number of books in the library and computers in the school do have an effect on the achievement of primary education students in Latin America, but their relative weight varies significantly from country to country.
Ejiro Thelma Akhiehiero (2011)	Effect of Inadequate Infrastructural Facilities on Academic Performance Of Students Of Oredo Local Government Area Of Edo State	Nigeria	Qualitative	----	The results of this study indicate that there is no appropriate and effective education if there is no provision of school facilities for effective teaching and learning. Poor facilities and infrastructure greatly affect the educational process.
Hanif Alkadri, Yulianto Santoso, Tia Ayu Ningrum, &Hade Afriansyah (2017)	Essentiality of Management of Facilities and Infrastructure toward a Number of Students of Early Years Institution	Indonesia	Qualitative	-----	The results of this study indicate that facilities and infrastructure are very important to attract public interest. So, the condition of facilities and infrastructure affects the quantity of students in each year.
Hajeng Darmastuti, &Karwanto (2014)	Manajemen Sarana Dan Prasarana Dalam Upaya Peningkatan Kualitas Pembelajaran Pada Jurusan Teknik Komputer Dan Informatika Di Smk Negeri 2 Surabaya (Facilities and Infrastructure Management in Improving the Quality of Learning at the Department of Computer and Information Engineering in SMK Negeri 2 Surabaya)	Indonesia	Qualitative	-----	The results of this study indicate that: (1) Procurement and planning of facilities and infrastructure in SMK Negeri 2 Surabaya aims to find out all the school facilities and infrastructure needs, planned since the beginning of the year by looking at the results of the evaluation in the previous year (2) Distribution of facilities and infrastructure in SMK Negeri 2 Surabaya is by selecting it as needed, then distributed to each program department and class. (3) Utilization and maintenance of facilities and infrastructure in SMK Negeri 2 Surabaya adjusted to the needs of teachers and students, there are rules that must be obeyed, submitted to each program department and class. (4) There is a special staff in charge of recording the utilization of facilities and infrastructure inventory in SMK Negeri 2 Surabaya. (5) The method of eliminating (Stopping the use of) facilities and infrastructure in SMK Negeri 2 Surabaya is to make an official report to the principal, and can only be made if the facilities and infrastructure have been

					damaged. (6) Efforts to improve the quality of facilities and infrastructure in SMK Negeri 2 Surabaya include having good and skilled administrative staff and also support from school residents.
Herwan, Aswandi, & M. Chiar (2018)	The Role of School Committee in Supporting the Fulfillment of Education Facilities and Infrastructure	Indonesia	Qualitative	-----	Based on the findings of this study, it can be concluded that: 1. The committee of SMKN 1 Teluk Keramat has done their role as an advisor, as a supporting agent, as a controlling agent, and as a mediator agent. 2. One of the supporting factors in improving the quality of facilities and infrastructure in SMKN 1 Teluk Keramat is that the school committee is very supportive in fulfilling educational facilities and infrastructure.
Miftakhul Jannah (2010)	Optimalisasi Manajemen Sarana Dan Prasarana Dalam Meningkatkan Mutu Pembelajaran Di Smp Nasima Semarang (Optimization of Facilities and Infrastructure Management in Improving the Quality of Learning in SMP Nasima Semarang)	Indonesia	Qualitative	-----	The results showed that the implementation of facilities and infrastructure management at SMP Nasima included: planning, procurement, inventory, storage, structuring, utilization, maintenance, and stopping use if the facility was damaged.
Mwangi Ndirangu, Maurice & O. Udoto (2011)	Quality of learning facilities and learning environment Challenges for teaching and learning in Kenya's public universities	Kenya	Quantitative	600 Higher Education Students, 120 Academic Staffs	The findings of this study indicate the quality of libraries, resources, and lecture facilities provided by Kenya State University do not meet quality standards. They cannot support educational programs effectively and cannot facilitate the development of a learning environment that supports students and lecturers to achieve their goals.
Nurbaiti (2015)	School Facilities and Infrastructure Management	Indonesia	Qualitative	Principals and teachers	This research shows that the planning and procurement of facilities and infrastructure by the school principal has fulfilled the provisions (criteria), inventory of school facilities and infrastructure has been done well, direct and indirect distribution, periodic maintenance of school facilities and infrastructure, supervision and accountability (reporting) school facilities and infrastructure by the school principal are conducted once a year during the new school year.
Reza Pahlevi, Ali Imron, & Desi Eri Kusumaningrum (2016)	Manajemen sarana dan prasarana untuk meningkatkan mutu pembelajaran (Facilities and infrastructure management to improve the quality of learning)	Indonesia	Qualitative	-----	The results of this study indicate that the planning of facilities and infrastructure at this school is carried out by staff of the Deputy Head of Facilities and Infrastructure.
<u>Halina Pratasavitskaya, & Bjørn Stensaker</u> (2010)	Quality Management in Higher Education: Towards a Better Understanding of an Emerging Field	Norway	Qualitative	-----	The results show that research in the field of quality management can be studied in a heterogeneous conceptual and multidisciplinary manner.
Purwadhi (2019)	The role of education management, learning teaching and institutional climate on quality of education: Evidence from Indonesia	Indonesia	Quantitative	268 Respondents	The findings of this study indicate that educational learning and leadership management, learning teaching and school climate influence on quality of education, has a very positive influence

III. DISCUSSION OF FINDINGS

This section reports the key findings reviewed from some articles that the author has read. The analysis showed that most articles focus on how the School Facilities and

Infrastructure in Improving the Quality of Education. The articles that have been reviewed are research conducted in the world. Based on the articles that are reviewed, there are various ways of data collection related to the School Facilities

and Infrastructure. The most commonly used method is using quantitative and qualitative methods.

Research on the school facilities and infrastructure management in improving the quality of education has been studied in many countries. Table 1 shows that research on this topic has been studied in many schools and universities in the world. The purpose of this article is to find out the management of school facilities and infrastructure in improving the quality of education. Considering the importance of research on the management of school facilities and infrastructure in improving the quality of education but very rarely research that explores the relationship of these studies, so the findings of this study are worthy of attention. The importance of understanding the management of school facilities and infrastructure in improving the quality of education requires further discussion.

Based on the results of the research from Table 1, most of it shows that the management of school facilities and infrastructure has a very strong impact in improving the quality of education and in supporting the educational process. These results are reinforced by Alkadri et.al in his research which stated that "The results of the study indicate that facilities and infrastructure are very important to attract public interest, so, the condition of facilities and infrastructure affects the quantity of students in each year" (Alkadri et al., 2017). Christina Amsterdam Research says that "Educational facilities have an important role in supporting the learning process" (Amsterdam, 2010). Ejiro Thelma Akhiehiero also stated that "No appropriate and effective education will happen if there is no provision of school facilities for effective teaching and learning" (Akhiehiero, 2011). Noer Kamilatus Sholihah's research results stated that "Adequate facilities and infrastructure can greatly support the educational process" (Sholihah, 2019). The results from Chansopheak's research show that "Quality has an important role in student achievement and to improve the quality of education" (Chansopheak, 2009). The results of the study by Daniel A Wagner show that bahwa "The results showed that, most development institutions have begun to emphasize improving the quality of education. This review is paralleled by a significant increase in the use of educational quality assessments as a way to measure gains and losses"(Wagner, 2010). Therefore, it can be stated that the results of the school facilities and infrastructure management in improving the quality of education have an impact in supporting the education process and have an important role in improving the quality of education.

Based on the results of the literature review, considering all studies reviewed on school facilities and infrastructure management in improving the quality of education from various countries in the world, researchers can make general conclusions that there is a significant relationship between school facilities and infrastructure management and the quality of education. School facilities and infrastructure management has an impact in supporting

the education process and has an important role in improving the quality of education.

As research in general, this literature review also has limitations, some of those limitations are: First, the articles reviewed are only articles written in English, so, other studies written in other languages are not reviewed due to language limitations. Second, dissertations and theses are not discussed in this article because they can cause publication bias in the results. Third, the scopes of the articles reviewed are still very limited, and it is very difficult to get literature that combines these two variables.

Despite the limitations of the literature that we must admit, our findings are expected to contribute information on the management of school facilities and infrastructure in improving the quality of education by looking at previous research in the context of the world. In addition, it can help to develop the process of managing school facilities and infrastructure effectively and efficiently. Thus, it can expand the view of all of us in developing school facilities and pre-retirement. So it is expected that with the management of school facilities and infrastructure is able to improve the quality of education.

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