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A framework study of school facilities performance in public primary school of Batubara district in Indonesia

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Abstract

School facilities have the important role to ensure the quality of teaching and learning with respect to achieve quality of education. The performance of school facilities significantly affected on student achievement. Therefore, the study on measuring school facility performance is basically important to be taken in order to provide appropriate teaching and learning environment. This paper aims to discuss about framework on measuring the performance of school facilities in public primary school in Batubara district in Indonesia. The concept of facility conditions that identified by Schneider is applied as a basis to measure school facilities performance. The proposed framework is structured through distributed questionnaire spread over Batubara district in order to find the level of school facilities performance from stakeholder perspective, in this case for those who work in school that using facilities. The level of school performance will be ranged from poor to excellent. The results are expected to be used as a guide for school to improve school facilities in public primary school in Indonesia concurrently leading to the improvement of the quality of education in Indonesia in the future.

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Keywords: School facilities; Performance; Student achievement; Quality of education.

1. Introduction

Education is having a significant role in the lives of children as they grow and develop. In Indonesia, it prepares young Indonesian people to make meaningful transition to an independent adult life (<http://www.worldedreform.com/intercon/kedre9.htm>). Education is also become the main focus for Indonesian Government's development agenda. The total expense on education has increased significantly in the years since the economic crisis. Spending on education was more than for any other sector, reaching an equivalent US\$ 14 billion, or more than 16 percent of total government expenditure (<http://go.worldbank.org/VUK7DZAN10>). However, the facilities for teaching and learning materials available at schools are often very limited (<http://www.worldedreform.com/intercon/kedre9.htm>). Generally many public primary schools have inadequate facilities, even the increasing fund given by the government. Besides, approximately 90% of education expenditure is allocated to pay salaries, mainly teachers' salaries and funding allocated for school operations is very limited, i.e. between 2% and 7% (<http://mbeproject.net/surveye.html>). Though, study on investigating to what extent the

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performance of school facility in supporting teaching and learning environment is not yet to be addressed as school operation's concern. In the public sector performance, education becomes an important sector for the application of techniques to the evaluation and improvement (Pollitt, 2003). As public school represents the public sector, the process of performance measures is the essential part to do the continuous improvement where the public can have better services and greater levels of efficiencies (Othman and Abdul, 2009). Regarding with schools context, Sarrico argued that the literature on school performance application is still lacking if compared with other areas like health care, social care, police forces, and local government, (Sarrico; Tice; and Rodrigues, 2004). Obviously, to give a boost and accommodate learning, the occupants should feel comfortable enough for meaningful interaction and learning (Uline and Moran, 2009). As discusses earlier, the increasing fund for better education in Indonesia could not address of fulfilling the suitable and sufficient facilities particularly in public primary school. On the other hand, the study on school facility performance in Indonesia is yet to be discussed.

This paper attempts to investigate and measure the level of school facility performance in public primary school of Batubara district with respect to support teaching and learning environment. The proposed framework is structured through distributed questionnaire spread over Batubara district in order to find the level of school facilities performance from stakeholder perspective, in this case for those who work in school that using facilities. The level of school performance will be ranged from poor to excellent. The results are expected to be used as a guide for school to improve school facilities in public primary school in Indonesia concurrently leading to the improvement of the quality of education in Indonesia in the future.

The rest of this paper is organized as follows. Section 2 describes the related work. Section 3 describes the proposed framework and discussion. Finally, the conclusion of this work is described in section 4.

2. Related Work

Several extensive researches on school facilities have been carried out in the world of education. Previous studies show that insufficient of facility involved teaching and learning performance, both for student and staff health and safety (Uline and Moran, 2008). The quality level of school facilities influences the quality of learning environment. Numerous factors with respect to facilities, such as the age of the facility, the thermal atmosphere, the ventilation, the acoustical environment, the amount and type of lighting found in classrooms, the cleanliness and maintenance of the facility, the availability of technology, and sufficient instructional materials and resources shortly will give the affect the adequacy of learning environment (Morris Jr., 2003). The Education Department of USA reported that decaying environmental conditions such as peeling paint, crumbling plaster, non functioning toilets, poor lighting, inadequate ventilation, and inoperative heating and cooling systems also known as the factor affect the learning as well as the health and morale of staff and students (United States Department of Education, 1999). According to Earthman, quality of school facilities where students and teacher are working and studying, united to their performance and effectiveness (Earthman, 2002). The other research also argue that the age of a public school facility recognize as a determining factor in the effectiveness of the educational process with increases in student achievement, increases in attendance, and improved instruction noted in newer facilities as well (Earthman, 2004). The adequacy of school facilities is also becomes a symbol to the achievement of school for developing the quality of education. The significantly better educational achievement exist for the students attending school in the newer school building than those attending the older building and concurrently encouraged the decision makers to take a note on the benefit of modern facilities as the issue needed to take into account (Baum, 2004). The relationship between student achievement and school facilities are reviewed on Lemaster's analysis. From her investigation, students had higher achievement scores in newer facilities (Lemasters, 1997). Lemaster's found that as the facility condition improved, it will be followed by the achievement improved (Lemasters, 1997). The academic work is also affected by the condition of school facilities. The facilities such as adequate heating, ventilation, and air conditioning are important for comfortable teaching and learning (Baum, 2004). From the learning and teaching aspects Hakim found that facilities play a significant role on teaching and learning process. Suitable and sufficient facility will assist the students to be more focus on learning process, and also to increase the quality as a student (Abdul Hakim, 2005). Hakim described five important components identified in providing learning facilities in order to create the optimal teaching and learning environment:

- a. Size and lay out related to flexibility and adjustment. Flexibility in the classroom can support teaching and learning.

- b. The acoustic system
- c. Good lighting system expected providing an optimum learning environment.
- d. Climate and ventilation
- e. Colour establishes a pleasing learning environment.

Joseph and Michael also emphasized the particular items of facilities provided on learning environment such as sitting arrangement, size, door and window, electricity, sound effect, lighting system, temperature and ventilation, Colour and white board (Joseph and Michael, 2001).

3. The Proposed Framework

3.1. School Facility

Facilities are products or services that support an organization to achieve its objectives. Facilities generally form part of the properties in an organization to support occupants in achieving business goals (Alexander, 1996). Within the context of education, such as school, it is aimed to create supporting teaching and learning environment for students, teachers, and other users around the school. Occupants of inadequate school facilities may fail to perceive a clear focus on academic purposes, and the learning environment is less likely to be thought of as orderly and serious (Uline and Moran, 2008). The other researcher emphasized that school facilities affect learning. Spatial configurations, noise, heat, cold, light, and air quality obviously bear on students' and teachers' ability to perform (Schneider, 2002).

Within the context of school performance, the criteria of school facilities described by Schneider could assist the shape for measuring the school facilities to equip teaching and learning environment. Schneider depicted school facilities (Schneider, 2002) as follow:

3.1.1. *Indoor air quality*

Research on indoor air quality find out symptoms identified—irritated eyes, nose and throat, upper respiratory infections, nausea, dizziness, headaches and fatigue, or sleepiness—have collectively been referred to as “sick building syndrome”(EPA, 2000).

3.1.2. *Ventilation and thermal comfort*

Schools need especially good ventilation because children breathe a greater volume of air in proportion to their body weight than adults do (Kennedy, 2001) and because schools have much less floor space per person than found in most office buildings (Crawford, 1998).

3.1.3. *Lighting*

Classroom lighting plays a particularly critical role in student performance (Phillips, 1997). Obviously, students cannot study unless lighting is adequate, and there have been many studies reporting optimal lighting levels (Mayron, Ott, Nations, and Mayron; 1974).

3.1.4. *Acoustic*

The research linking acoustics to learning is consistent and convincing: good acoustics are fundamental to good academic performance. In one of their many syntheses of existing work, Earthman and Lemasters (Lemasters; 1997) reported three key findings: that higher student achievement is associated with schools that have less external noise, that outside noise causes increased student dissatisfaction with their classrooms, and that excessive noise causes stress in students.

3.1.5. *Size and Configuration*

There is some evidence that no matter the size distribution, the smaller schools in the distribution enhance achievement (Howley; 1995). This finding implies that a policy of smaller size, no matter the starting point and notwithstanding any absolute definition of smallness, is appropriate.

3.1.6. *Building Age Quality*

School building quality basically point to improved student behaviour and better teaching in higher-quality facilities. Maxwell (Maxwell; 1999) found a correlation between newer facilities and student performance levels and a significant relationship between upgraded facilities and higher math scores.

3.2. The Framework

In section 2, some studies and approaches have been discussed on the significance of school facilities to influence pupil's academic outcome, as well as teacher effectiveness in teaching activities. This study attempts to measure the level of school facility performance for teaching and learning environment. The following framework seeks to combine the world wide approaches on school facility concepts with school facility standard applied in Indonesia.

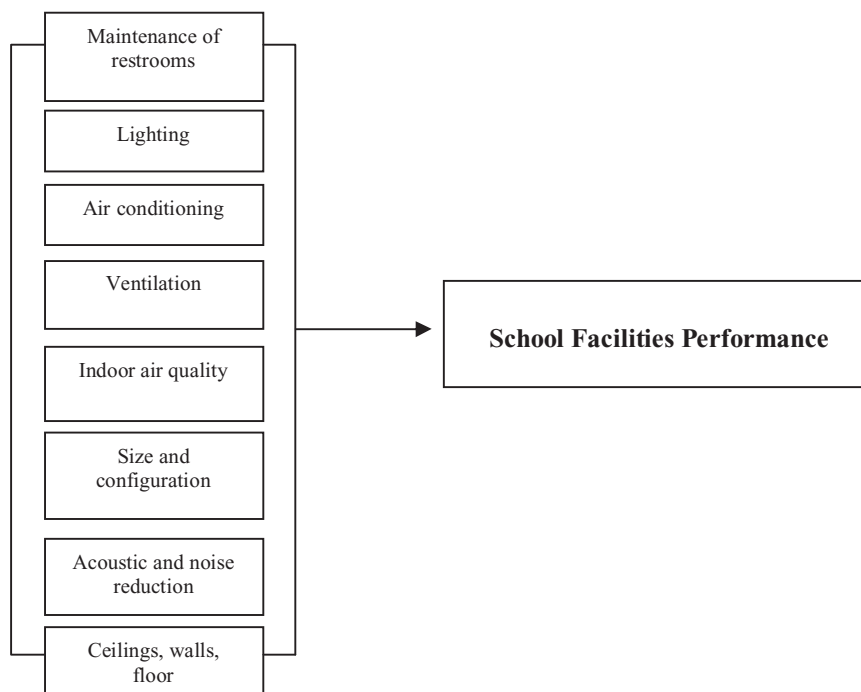


Figure 1. Framework of School Facilities Performance

3.3. Discussion

The measurement of school facility that introduced by Schneider is attempted to be applied within school facility in public primary school of Batubara District in Indonesia. This framework will be used as the basis to measure the level of public primary school facility performance. A survey questionnaire with respect to school facility component will be developed to determine the perception of school stakeholder on the level of school facilities performance in supporting teaching and learning environment in public primary school of Batubara district of Indonesia.

A likert-scale point from 1 to 5 will be applied in the direction of screening the level of school's stakeholder perception, in this case for those who are using school facilities. The questionnaire will be distributed through the 10 public primary schools spread over seven sub district of Batubara district, and the data expected will be analyzed descriptively by using SPSS software version 16.

The school facility performance will be measured through the scale from poor (1) to excellent (5) described as follow:

Table 1. Level of School Facility Performance

Scale	Level of School Facility Performance	Description
1	Very Poor	Facility is marginal

2	Poor	Facility is insufficient
3	Somewhat good	Facility is insignificant
4	Good	Facility is suitable and sufficient
5	Excellent	Facility is outstanding

4. Conclusion

School symbolizes goal achievement of education system, indirectly the school influence and shaped the identities of the human occupants individually and collectively (Proshansky, Fabian, and Kaminoff; 1995) and it will bring a significant role in the lives of children as they grow and develop. For the development of quality of education in Indonesia, therefore school facility is recognized significantly as supporting part in providing good teaching and learning environment, some efforts to improve its performance is need to be done, such as to do the initial investigating on school facility performance that has been done yet in Indonesia, particularly in Batubara district. In this paper, we have proposed and discussed a framework in measuring the level of school facility and for further it is expected lead to the improvement of quality of education in Batubara District of Indonesia.

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