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THE SCHOOL BUILDING MAINTENANCE MANAGEMENT ISSUES IN SMK SAUJANA INDAH, PENANG

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ABSTRACT

Issues regarding school building in aspects of maintenance management are currently happening in Malaysia especially in public schools. Hence, the purpose of this study is to determine the factors that contribute to school building maintenance management issues and to find out the main factors that contribute to school building maintenance management issues in SMK Saujana Indah that located in Seberang Perai Selatan District. In this research, a quantitative approach has been adopted by using Relative Importance Index and Likert scale. Online questionnaires have been distributed to the teachers and staff of SMK Saujana Indah that is located in Nibong Tebal under the District of Seberang Perai Selatan. The school has been selected due to several reports made by Persatuan Ibu Bapa dan Guru (PIBG) of the school during the Annual Grand Meeting regarding maintenance and management issues. From the data collected, 29 respondents have participated. The finding revealed that there are 14 factors that contribute to school building maintenance management issues. Meanwhile, vandalism is the significant factor contributing to school building maintenance management issues in Seberang Perai District. The Malaysian Education Ministry, policy maker and District Education Office should formulate strategies to improve the maintenance and management of schools in Malaysia especially for public schools.

Keywords: *maintenance management, school facilities, maintenance issues*

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INTRODUCTION

This research discusses the importance of educational facilities, particularly schools, in the comprehensive development planning process. The school is necessary as a focal point in the neighbourhood is highlighted, emphasizing the need for safe and sufficient school equipment to positively impact student performance and teacher effectiveness (Ibrahim et al., 2016). The research presented in the paper focuses on preventive and corrective maintenance of school buildings. Maintaining school buildings is crucial to provide a safe and comfortable environment for teachers and students, enhancing their focus during lectures and learning sessions. Various maintenance issues often arise in school buildings, resulting from performance shortcomings that do not meet standards and requirements (Yacob et al., 2019). Effective school maintenance is essential to prevent future losses, such as high repair costs, and to ensure the health and safety of students and teachers, which significantly influences educational performance (Herath et al., 2022).

The study was conducted in the SMK Saujana Indah that located in Seberang Perai Selatan District, Penang, to determine the factors influencing school building maintenance management issues and to analyze the significant factor that contribute to school building maintenance management issues in the SMK Saujana Indah.

Maintenance Management

Definition of Maintenance Management

According to the British Standard (BS 3811,1984), maintenance is the culmination of technical actions and related efforts to keep and restore internal items, ensuring their usability (Instrumentation Tools, 2019). The Oxford Advanced Learner's Dictionary 7th Edition 2005 defines maintenance as the practice of inspecting or repairing something constantly to keep it in good condition. New research indicates that maintenance management aims to keep assets in good condition, controlling time and cost for maximum efficiency (Jeans, 2022). Properly implemented maintenance management programs can prevent resource wastage and equipment downtime, extending building life and ensuring safety (Zolkafli et al., 2019).

Definition of Building Maintenance

Building maintenance, according to the British Standard (BS 8210,1986), involves maintaining the functionality of the building fabric and its services, beyond daily cleaning (Instrumentation Tools, 2019). It includes preserving and restoring the structure and components of a building to a certain standard, considering needs and available resources (UKessays.com, 2023). Building maintenance management focuses on setting up maintenance systems to address issues and minimize costs, while building maintenance technology involves investigating structural flaws (Al-Zubaidi, 1997).

Types of Maintenance Management

Maintenance can be categorized as planned and unplanned. Planned maintenance aims to prevent unexpected equipment damage and involves periodic and routine maintenance (Ropi & Tabassi, 2014). Preventive and corrective maintenance are part of planned maintenance. Unplanned maintenance occurs when equipment malfunctions, requiring immediate corrective maintenance (Fiix, 2022).

Definition of School Facility

School facilities defined as land include structures, and furnishings. It consists of physical infrastructure with classrooms and ancillary rooms (Beynon, 1997). The condition of school facilities influences the quality and satisfaction of the school community and stimulates investment in public education (Ibrahim et al., 2016).

Maintenance Issues in Malaysia

Maintenance issues in Malaysia arise from the lack of systematic maintenance practices in organization (Au-Yong et al., 2019). Inadequate maintenance budgets lead to problems in utilities systems (Lateef et al., 2011). Insufficient allocation for maintenance activities results in high repair costs and disruptions in maintenance schedules. Additionally, the lack of skilled labour in construction and building maintenance contributes to equipment failures, affecting user safety (Au-Yong et al., 2014).

Issues on school facilities

Vandalism on school building and facilities

Vandalism is a common problem in schools worldwide, referring to intentional damage to school grounds, buildings, and equipment. Vandalism often occurs in hidden places such as toilets, and it creates an uncomfortable environment for learning and teaching activities (Arizona State University,2022). Vandalism affects students' academic achievement and increases maintenance costs (Zainal & Salleh, 2007). An incident of vandalism at a secondary school in Simpang Ampat, Penang resulted in damage to equipment such as chairs, tables, fans, and doors (Cue, 2023).

- Old and outdated school's equipment

Outdated school equipment is another issue, as many school buildings still use old and outdated equipment that negatively impacts student performance (Earthman, 2004). Older buildings may lack modern amenities such as central air conditioning and proper lighting, and their structure limitations may not meet current demands (Earthman, 2004).

- Fail to follow specified design criteria in terms of structural system and selection of materials

Failure to follow specified design criteria for structural systems and material selection can lead to building defects and difficulties in maintenance. In Singapore, high-rise buildings face maintenance challenges due to the absence of access systems, increasing the cost of building facade maintenance (Ali et al., 2013). In Malaysia, school buildings also face difficulties in maintenance due to design issues that do not follow set standards, posing risks to the safety of occupants (Mydin et al., 2014).

- Fail to follow standards and requirements of school building

Failure to meet standards and requirements of school buildings is another significant issue. While planning authorities provide guidelines and standards, there is a lack of facilities in schools, such as those for disabled children and staff (Ali & Alias, 2011). Insufficient physical facilities negatively impact student academic performance, student engagement, and teacher performance (Earthman, 2004).

- Delay action to fix the maintenance issue

Delay in fixing maintenance issues is attributed to lengthy approval procedures and complicated application processes for maintenance funding by the Department of Education Malaysia (Hassanain et al., 2019). As a result, many schools opt to conduct maintenance independently, without utilizing funding from the Department of Education Malaysia (Abidin et al., 2009). The school community also complains about delays in resolving maintenance issues, with approximately 25% of respondents reporting that the Department of Education took more than a month to address maintenance problems (Abidin et al., 2009).

- Large school size and high number of students

Large school size and high numbers of students create challenges in maintaining facilities, particularly in public school (Mohd Yusof et al., 2017). The growth in student enrollment leads to bigger class sizes and crowded classrooms, resulting in a shortage of amenities in school buildings. Parents emphasize the need for suitable facilities to accommodate both teachers and students, ensuring a comfortable learning environment (Mohd Yusof et al., 2017).

- Insufficient allocation by government

Insufficient allocation by the government is also an issue, as although significant funds have been allocated for the education sector, maintenance allocations remain insufficient and unchanged for over a decade (Mstar, 2011). The allocated budget for school maintenance has not kept up with the rising costs of materials and maintenance wages, necessitating an increase in the allocation (Mstar, 2011).

- Expensive cost of repair on school facilities due to old building age

The expensive cost of repairs on school facilities is due to the aging of school buildings, with approximately 80% of schools aged 15 years and above (Jamal, 2008). The aging infrastructure requires constant maintenance and faces unexpected failures, leading to additional costs (Jamal, 2008).

- Lack technical expertise

Lack of technical expertise in the Department of Education Malaysia hinders efficient building maintenance, as there is a shortage of qualified personnel to perform maintenance tasks (Abidin et al., 2009). Additionally, the absence of an organized employment structure and non-adherence to Malaysian School Building guidelines and regulations pose further challenges (Abidin et al., 2009).

Problem Statement

This research emphasizes the importance of well-maintained school buildings for the safety of students and teachers. The government allocates a significant amount of funds to the education sector, demonstrating its importance in Malaysia (Mazlan, 2008). However, various maintenance issues arise, particularly in school buildings that do not meet the required standards (Ali et al., 2013). These issues include broken windows, fans, and damaged floors, posing risks to the safety of students and teachers. Poor school facilities negatively impact the performance of teachers and subsequently affect the academic performance of students (Ibrahim et al., 2016).

According to Mohd Radzuan et al.,(2021), there are several complaints against level of maintenance services provided to school including the buildings and facilities via official media and scholars. From the data analysis made by the authors, there are 534 schools identified as dilapidated schools in Sabah, Sarawak and Semenanjung. This shown that the understanding of school maintenance is still weak.

Several reported cases of student injuries caused by poorly maintained buildings highlight the seriousness of the issue. According to New Straits Times (2022), on 18th October 2022 a 8 years old pupil in Selama, Perak suffered finger and chest injuries after being hit by a ceiling fan that fell in her classroom same as on 9th August 2022 in Kota Bharu Kelantan, 2 students of SMK Melor were injured after a water tank burst and other 3 students were traumatised due to the incident. Both incident were caused by poor maintenance of school facilities.

The increasing number of students and larger class sizes in schools, particularly in public schools, present challenges in maintenance and management (Ibrahim et al., 2016). Around 80% of Malaysian schools are over 15 years old and require extra attention during maintenance tasks (Abidin et al., 2009). However, the complex and lengthy process of obtaining maintenance funds from the Malaysian Department of Education leads to many schools independently performing maintenance tasks (Jamal, 2008).

METHODOLOGY

Approach

The research approach for this conference paper involves the use of a quantitative method to conduct a survey. The survey will collect data through a questionnaire to accurately gather information from respondents' perspectives. The questionnaire will focus on factors influencing school building issues, satisfaction with school facilities, common issues in school buildings, observation of maintenance schedules, and weak design elements. Descriptive analysis will be employed to analyze the data and calculate the Relative Importance Index to achieve the research's second objective.

Materials

The data for this research study will be obtained from both secondary and primary sources. Secondary data will be gathered from relevant publications, articles, and authorized documents related to the topic, which will contribute to determining the factors contributing to school building maintenance management issues in SMK Saujana Indah. Primary data, on the other hand, will be collected through quantitative methods, specifically by surveying school staff such as teachers to analyze the significant factors influencing school building maintenance management issues in the SMK Saujana Indah, which is the second objective of the research.

Samples

The sampling technique chosen for this study is probability sampling, specifically simple random sampling. A total of 57 teachers and staff from the school will be targeted as respondents for the survey, conducted through a Google Form survey. The minimum target for respondents is set at 50% of the total population.

Site

There are several public schools located in the district of Seberang Perai Selatan. However, the most suitable school to be selected for data collection is Sekolah Menengah Kebangsaan Saujana Indah, located in Nibong Tebal. The decision to select this school was based on its location and reports from the *Persatuan Ibu Bapa dan Guru* (PIBG) regarding maintenance and management issues discussed during the Annual Grand Meeting. Hence, to focus on the research objective, only 1 school selected as the case study instead of several schools because every school have different criteria such as size of school, number of students, types of school and others.

Procedures

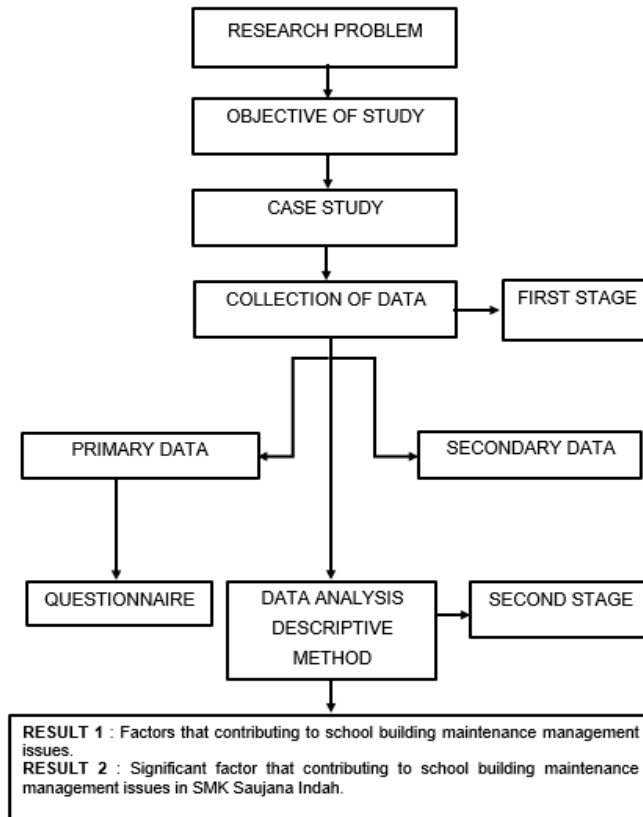


Figure 1: Procedure for Data Collection

Data Analysis

At the end of the data collected, the significant factors that contributing to school building maintenance management issues in Seberang Perai District will be analysed by using the by using SPSS Software to carry out the Descriptive Analysis that used to analyze the Relative Important Index (RII).

Validity and Reliability**Table 1: Statistic of Descriptive Analysis**

| Statistics | | |
|---------------------|-------|------|
| | N | Mean |
| | Valid | |
| Period | 29 | 2.69 |
| Experience | 29 | 1.72 |
| Number | 29 | 2.00 |
| View | 29 | 3.00 |
| Vandalism | 29 | 4.21 |
| The equipment | 29 | 3.86 |
| Design | 29 | 3.31 |
| Materials | 29 | 3.31 |
| Damage | 29 | 3.69 |
| Size | 29 | 3.76 |
| Age | 29 | 3.59 |
| Requirements | 29 | 3.48 |
| Allocation | 29 | 2.79 |
| Costs expensive | 29 | 4.03 |
| Costs borne | 29 | 3.59 |
| Facilities | 29 | 3.38 |
| Maintenance | 29 | 3.69 |
| Technical expertise | 29 | 4.07 |

Table2: Result of Relative Important Index (RII)

| | RANK | Relative Important Index (RII) |
|---------------------|------|--------------------------------|
| Vandalism | 1 | 0.8414 |
| Technical Expertise | 2 | 0.8138 |
| Costs Expensive | 3 | 0.8069 |
| The Equipment | 4 | 0.7517 |
| Size | 5 | 0.7517 |
| Costs Borne | 6 | 0.7517 |
| Damage | 7 | 0.7379 |
| Maintenance | 8 | 0.7379 |
| Age | 9 | 0.7172 |
| Design | 10 | 0.6621 |
| Allocation | 11 | 0.6414 |
| Materials | 12 | 0.5379 |
| Facilities | 13 | 0.5241 |
| Requirements | 14 | 0.5034 |

RESULTS AND DISCUSSION

The online survey has been conducted by distributing the questionnaires via google form to achieve the objectives of this research. The objective of this research is to determine the factors that contribute to school building maintenance management issues and to analyze the significant factor that contributes to school building maintenance management issues in SMK Saujana Indah.

According to table 2, there are fourteen (14) factors that contribute to school building maintenance management issues identified from the secondary data. From the table, it shows the level of importance by using the Relative Importance Index (RII) that is used to identify the second objective, which is to analyze the significant factor that contributes to school building maintenance management issues in SMK Saujana Indah. The result from the data collected shows the second objective of this research, which is to analyze the significant factor that contributes to school building maintenance management issues in SMK Saujana Indah, has been achieved. Next, the highest important factor recorded from the data is vandalism, which influences several issues in school building as shown in table 2.

Table 1 shows that the highest mean of the vandalism factor is 4.21. This means that most of the school maintenance and management issues that often occur in SMK

Saujana Indah caused by vandalism. From the Descriptive analysis, the factors that contributing to school building maintenance management issues has been analyzed and ranked accordingly by using Relative Importance Index (RII) from the descriptive analysis. Table 2 above shows the most influence factors to the school maintenance and management issues is the vandalism. This because vandalism can effect to the serious damage to the school equipment and it can increase the cost of repair. For example, cost to hire a painter to repaint the damaged wall, cost of replacement of damaged equipment and others.

The first objective of this study is to determine the factors that contributing to school building maintenance management issues. According to the data analyzed, it shows that the first objective has been achieved where fourteen (14) factors that contributing to school building maintenance management issues has been identified such as vandalism, the equipment of school facilities are very old and outdated, design of the school building influence to the unmanageable, materials of facilities, the damage of school facilities take a long time to be repaired by the responsible parties, the large school size and high number of students, the age of school building, the standards and requirements as prescribed, the allocation by the government, the costs of repair and maintenance of school facilities are expensive due to old building age, the costs of repair and maintenance are borne by the school itself, the school facilities are well maintained and managed by the appointed property management company, maintenance and management of school building are handled by the school staffs itself and lack of technical expertise. All these factors used to analyze the significant factor that contributing to school building maintenance management issues in SMK Saujana Indah.

The second objective of this study is to analyze the significant factor that contributing to school building maintenance management issues in SMK Saujana Indah. According to the result of the ranking table analysis that has been analyzed by using Relative Importance Index (RII), it has been evidence that the second objective of this study has been achieved which was the main factor that contributing to school building maintenance management issues is vandalisme where it is the first ranking with the Relative Importance Index (RII) 0.8414 which means the most influence factor in this objective.

CONCLUSION

In conclusion, the Malaysian Education Ministry, policy maker and District Education Office are recommended to utilized their power in future, by adding sufficient allocations for the maintenance and management of the school to improve the facilities provided for the purpose of learning and activities in the school. Not only that, recommendation on improvement of maintenance's standards and guidelines that can be focused on giving equal rights to people with disabilities by providing safe

and easily accessible facilities to people with disabilities. Lastly, recommendation to the district education office to appoint a contractor who has a good record to carry out excellent maintenance work and conducting periodic visits. All the recommendation are gathered from the data collected.

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Saya yang menjalankan amanah,

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Timbalan Ketua Pustakawan

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