

Responds to the Space Management Level in Higher Education Institutions

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Abstract. Space management is one of the essential components in facility management. Space management is also important in ensuring the success of the organization in achieving its goals and objectives. In order to achieve organizational objectives, the space must be managed effectively. According to the National Audit Office (1996) study, the space management for institutions of higher education is more critical than other organizations. Kenny and Foster (1985) states, the costs related to physical resources is the second most crucial budget after the cost of staff salaries at institutions of higher education. But until now, most of the university administration as well as from other public sector organizations, especially from Asian countries have yet to understand the role and contribution of the physical resources to their organization. The purpose of this paper is to identify the level of space usage in Universiti Tun Hussein Onn Malaysia (UTHM) as a case study. Interview of space user (person in charge) that represents UTHM in higher education institutions has been conducted to find out the level of space usage. Ten of the respondents in the interview were the responsible person of center (person in charge) were included. There is an opinion and suggestion by space user to show the space usage level in teaching and learning space in UTHM. Hopefully, this research will contribute to the enhancement of awareness among users in using space effectively and more appreciative of the available space in an institution in particular.

Keywords: Space Management, Higher Education Institutions, Space Usage.

1. Introduction

Efficient and effective space usage will reduce the cost of an organization and at the same time can increase the level of productivity of the organization [1]. Thus, space management and facilities management in any organization especially in higher education institutions should be emphasized to achieve the government's recommendation of prudent management of public property. Implicated cost related to physical resources in an organization such as Higher Education Institutions (HEIs) is very large [3]. Kenny and Foster [2] states the costs associated with physical resources is estimated to reach around 20-30% of the cost of an organization's annual budget [4][5]. Besides that, Marsh and Griffith [6] states the cost of academic space per student is about U.S. \$ 2,000.00 per year. The information indicates that the cost equals to the cost of space per worker in the corporate organization [5]. The importance of costs to build and acquire, maintain and use should not be taken frivolously.

For 1987-88 the annual session, the information indicates this cost equals of space per worker in the corporate organization [5]. The importance of costs to build and acquire, maintain and use, should not be taken frivolously. For the annual session of 1987-88, the maintenance costs and annual operating costs was estimated to exceed U.S. \$ 8 billion. This trend not only implicates higher education in other country but also involves higher education institutions in Malaysia. According to Utilization report of Higher Education Institution in 2002, the space for teaching and learning that should be used was only 54 percent per week. However, there are currently 20 universities (universities, colleges, universities, polytechnics) in the country, with estimated public annual operation incurred cost by the Ministry of Education to reach RM1 billion. This value is large for a developing country like Malaysia. [3] Improperly managed space usage can contribute to waste of space. Space management is considered vital not only in terms of optimization, but also related to the cost of operations maintenance. If more space is used, the required cost of energy, operations, cleaning and repair will be increase.

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2. Related Works

2.1. Type of Space Management

According to the University of Bristol [7], space can be divided into four categories. Among the types of space are:

- Category 1 :

This room type is not suitable to be occupied by humans. An example is the basement, attic and storage. This space has a low ceiling. This room type is rarely cleaned. The minimum electrical power only uses the lights only. Do not have room for only one room used for storage only.

- Category 2 :

The second type of space is university space. It includes office accommodation, seminar and lecture rooms, lecture halls, shops and so on. This room type consists of facilities such as heating, lighting, cleaning, telephone and so on. Type of space may have some additional facilities including water and gas.

- Category 3:

Third space category has an element of cost. These cost elements include, Air conditioning, air extraction (through water handling or fume cupboards), high power consumption (more than 100wm-2). For example, a refrigerator is used for 24 hours. Example of this type of space is a medical laboratory building.

- Category 4 :

Space in this category has an expensive cost. It exceeds the cost elements described above.

2.2. Significance of space management in higher education institutions

The management of physical resources is one of the main agenda for HEIs in the USA's higher education system which is more dynamic and pro-active as there are many institutions not funded by the government and institutions manage theirs like a business. This country face a lot as in the economic downturn, increasing the number of students compared with other countries and learning relationships with community, industry and trade bodies have been established earlier. Therefore they are more sensitive to the problems currently faced by other countries. According to Best. R, [8] space management is a service which delivers management plan for the perfect space usage. National Audit Office [1] states that there are four factors for effective space management which is leadership, objectives, information, communication and practical tool. University of Strathclyde Glasgow [9], defines space management as a proactive management of research and best practice initiatives to support strategic planning goals and respond to legal requirements. In a large organization like HEI's, space management plays an important role to effectively control the space without any waste which the indirect impact is negative on the cost management in an institution. Space management is also important for the HEI's either during office hours or outside office hours and this awareness has arisen since 1960's. Therefore, management of physical resources help institutions meet the mission or strategic objectives [10],[11]. At the operational level of management approaches should be based on economic principles, which is more pro-active and non-technical or reactive. The basic principle of economics is to have a surplus or profit through savings and optimization (economizing and optimization), and this pro-active management is to create action plans based on prior information. One of the approaches is related to space management.

3. Research Methodology

This paper is to identify the level of space usage in teaching and learning at UTHM as a case study. To achieve this objective, researcher interviewed the person in charge in space usage at UTHM. Merriem [12] state that there are three types of interviews consist of structured interviews, semi-structured interviews and unstructured interviews. A semi-structured interview was implemented in this study because it is flexible and can describe what the respondent thinks. 10 people were selected comprising the head of center in charge such as Faculty of Technology Management, Business and Entrepreneurship, Faculty of Electrical and Electronic Engineering, Faculty of Technical Education , Faculty of Public and Environmental Engineering, Faculty of Mechanical and Manufacturing Engineering, Faculties of Arts, Science and Heritage, Faculty of

Computer Science and Information Technology, Academic Management Office, Property Management Office, and the Registrar's Office.

4. Analysis

The pie chart below shows the analysis of the views and opinion of the person in charge in centers responsible on the use of space in the University. There were 10 respondents which are representative of each faculty as well as the registrar office and the Property Management Office. Respondents were from the age of 46 which represents 60% of the samples. Respondent's age 31 to 45 years amounted for 40 percent. Majority of respondents (80%) have a doctorate (10%) of respondents have a bachelor degree and (10%) advanced degree at postgraduate level. All respondents had experience of 11 years in their field.

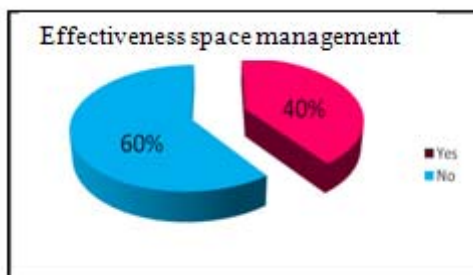


Fig. 1: Effectiveness space management.

Feedback shows 60% of respondents consider the management of space is not managed effectively and optimally, while 40% of respondents consider the management of the Universiti Tun Hussein Onn are managed effectively and optimally. It is shown in Figure 1.

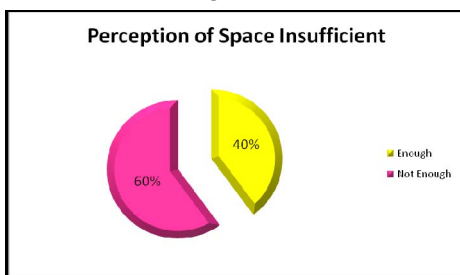


Fig. 2: Perception of space insufficient.

Respondents were also asked about the issue of inadequate space in the space management in the University. Feedback showed that 60% of respondents said that there is not enough space, while 40% said the space is enough.

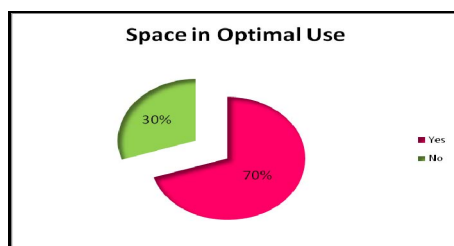


Fig. 3: Space in optimal use.

A total of 70% of respondents said space is in optimal use, while about 30% of respondents said space is not used wisely. This is shown in Figure 3.

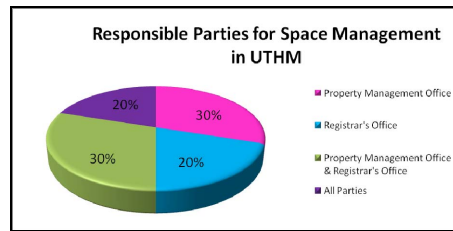


Fig. 4: Responsible parties for space management in UTHM.

The study shows that 30% of respondents said the Property Management Office is responsible for space management, while 20% of respondents said the Registrar's Office is responsible, 30% of respondents said the Property Management Office and Registrar's Office is responsible, while 20% of respondents said all parties should work together. This is shown in Figure 4.

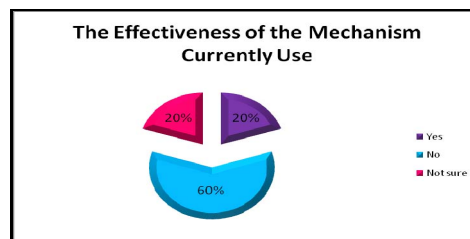


Fig. 5: The effectiveness of the mechanism currently use.

Respondents also stated that 60% of respondents are not satisfied with mechanism in use now day, while 20% respondents were very satisfied and 20% of respondents are not sure. They are wretched because management space is not efficient and class was at the night time. This is because lecturers always change the classes schedule but did not notify the Academic Management office first.

5. Discussion

The analysis in this study explained about the use of space for teaching and learning in Building Complex G3, UTHM. The analysis shows the space management in university is not managed properly and effectively. Respondents said the building was built not in accordance with the specifications. For example, the equipment for training rooms is without tight sound / soundproofing. Similarly, high roof construction can waste electricity. Next, respondents were asked about the challenges and obstacles in dealing with the optimal space. While, respondents also commented that the use of lecture hall is not optimal because the space is too big for small number of students. This problem occurs especially for postgraduate students because their number is small compared to undergraduate students. Respondents also said not enough space to accommodate more students becomes a major problem in this case in which a total of 60 per cent stated that the University space is not sufficient. The space is not enough especially in the city campus, UTHM. Post Graduate student also had to use the lab, meeting rooms and seminar rooms for learning purposes. There are also respondents said that the University is in enough space, but the way of management is the leading cause of inadequate space. However, 70 percent of respondents stated that space usage is optimal. This showed that the main problem is concerned with the issue of inadequate space and not the use of space itself. Respondents also disagreed with the currently used mechanisms of the scheduling system. This system resulted in the inefficient space management and has resulted in inadequate space. Respondents were also asked on the level of current methods of scheduling compared to other methods. Feedback found that a total of 70% of respondents said that the University space management must be improved so that it is more efficient, 20% of respondents said this method is better than other methods and 10% of respondents did not identify the method used nowadays. In this case based on opinions of respondents about the management of space, they argued that the registrar's office and property management office play an important role in managing the available space. Next, respondents were asked about the challenges and obstacles in dealing with the optimal space. However, the constraints and obstacles in the management of the space are too much to manage as property management Office and the Academic management office do not have central unit. Second, is the frequent adjustment of class lectures at certain time. This has resulted in classes overlap each other. Besides that, respondents were also asked about the university space problems and the method used to

solve the problem space. Almost all respondents agreed that the new university building have more space problems compared with long-established university.

6. Conclusion

This paper tries to describe how space management in university is not in optimum use. The output showed that the space management in university is not efficient and effective. Space in the University is still not sufficient to accommodate increasing number of students. Some proposals need to be emphasized in these space management problems. Among the proposals is to increase the efficient use of space for teaching and learning of the University, is to do necessary improvement in the scheduling system to be more orderly. Second, the need to strengthen the rigor in the enforcement of the class distribution system in which staff cannot change classes at will. Only academic management office has the authority to do so. In addition, respondents suggested that additional space should be given to the faculty. Respondents also suggested constructing smart classroom where lights or air conditioning equipment will automatically switch on and off when there are people who use them or use the card and the lights and air conditioning will work automatically. Respondents also suggested the necessity to prove and concern of using the door which will open automatically when the card is punched. In addition, all parties must work together and the last person to use the class need to switch off the lights, fans, air conditioners and other electrical devices. This is because the university only has two staff to control the teaching and learning space. Enforcement and fines should be imposed on those who waste. Low hanging fruit solution like stickers or signage to prevent any waste must be affixed on any part of the common wasted area. This is because space management is considered important not only in terms of optimization, but also related to the cost of maintenance operations. More space used the more budget need to use.

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