IDENTIFYING THE CRITERIA OF APPROPRIATE LEARNING SPACE DESIGN IN AN ACADEMIC LIBRARY: A CASE STUDY AT CENTRE FOR ACADEMIC INFORMATION SERVICES (CAIS), UNIVERSITI MALAYSIA SARAWAK (UNIMAS)

Dayang Norsheila Binti Abang Mohtar
Librarian
Universiti Malaysia Sarawak (UNIMAS), Kota Samarahan, Sarawak, Malaysia
mnorsheila@.unimas.my

Norazlina Binti Abdul Rahman
Senior Librarian
Universiti Malaysia Sarawak (UNIMAS), Kota Samarahan, Sarawak, Malaysia
arnorzalina@.unimas.my

ABSTRACT

The library is expanding its roles as a place for reflection, sharing and learning. Library spaces nowadays are used for various purposes. The academic library is a building which functions to provide the space to store information together with the availability of certain services and facilities which reflect the values, mission and goals of a university. This paper reviews related literature on the 21st century learners’ learning behaviour and the appropriate spaces for their learning. Learning spaces within a library is vital because it affects both learners’ learning process and learning behaviour. The learning goals that resulted from this somehow measure the library’s success in its ability to accommodate sufficient space and facilities for students. Students have considered that learning outside the classroom provides them with better learning spaces compared to the classroom itself. Since the library is mainly considered as the main informal learning space within the campus, students expect it to provide various types of spaces designed for different types of learning activities which allow individual study, group study, collaborative study, meeting, group work, and so forth. Furthermore, digital natives on the other hand prefer to conduct their work and complete their assignments or tasks using the latest technologies and somehow this requires the library to provide spaces that support learners of this group. This study is conducted among the users of the Centre for Academic Information Services (CAIS) who consist of Universiti Malaysia Sarawak (UNIMAS) students. The results of this study showed the criteria needed in providing appropriate learning space design in an academic library. This is identified based on learners’ learning experiences and the said criteria can be considered for the purpose of redesigning the existing spaces in order to provide better learning spaces for students.
1. INTRODUCTION

The Library in the current state has become a place of knowledge acquisition, communication and socializing with people. Both public libraries and academic libraries begin to transform the approach of a quiet place to a new modern place where people meet and use information in groups. Libraries of the future should be able to serve several roles of communities and society based on the library space design. However, its success can be measured by the users’ satisfactions on the influence of the physical interior environment towards them (Suhaila Sufar, Anuar Talib and Haris Hambali, 2012).

Learning spaces usually reflect both the people and their learning approach of the times. Therefore, the spaces designed and offered in many years back may not be suitable for learners today. Most of today’s learners prefer active, participatory or experiential learning and this refers to the learning style in which they exhibit in their own lives (Oblinger, 2006). The shift in learning patterns of the current generation motivates the changes in the functions of academic libraries. Libraries are expected to accommodate the learning style and demands of learners of this generation.

The Centre for Academic Information Services (CAIS), Universiti Malaysia Sarawak (UNIMAS) was established in early 1993 and it began its operation in May 1993. CAIS has been actively acquiring library materials in order to build its collection and these include printed and electronic resources. CAIS has been offering both library services and facilities to users and at the same time enabling students to access its collection or resources via CAIS OneSearch, which was formerly known as the Online Public Access Catalog (OPAC). Besides that, CAIS also functions as the Knowledge Centre for the university whereby it supports directly and contributes to the academic programmes’ success (Centre for Academic Information Services, 2014).

CAIS has officially started its operation in the new building on 6th February 2006. This new building covers an area of about 22, 600 square metres with five floors. The centre offers its patrons with a wide range of services and facilities, such as a big exhibition area, an auditorium, seminar rooms, discussion rooms, computer laboratories, carrel rooms, media room and the 24-hour learning facility (Centre for Academic Information Services, 2014).
The objectives of the study are:

- To identify 21st century learners’ learning behavior
- To identify appropriate learning spaces design for learners
- To identify the learning activities conducted by learners.
- To identify the factors contributing to learners’ satisfaction in using library spaces.

2. SCOPE AND LIMITATION OF THE STUDY

This study is conducted among the users of the Centre for Academic Information Services (CAIS), Universiti Malaysia Sarawak (UNIMAS). A total of 20 respondents were randomly selected to participate in the interview conducted. These respondents comprised of undergraduate students and postgraduate students.

3. METHODOLOGY

This study identifies the 21st century learners’ learning behaviour, their learning activities, the factors contributing to learners’ satisfaction in using the spaces provided and the appropriate learning space design for learners. Interviews were conducted and 20 respondents were randomly selected among CAIS’ users. The targeted population of the study was the undergraduate students and postgraduate students.

4. LITERATURE REVIEW

*Types of learning activities*

Recent studies have looked at the success of latest learning space design in supporting student learning. May and Swabey (2015) conducted a study regarding the actual use of physical space in academic libraries at three different institutions, namely Community Colleges, Undergraduate Universities and a Technical Institute. The results of the study identified the findings that relate to learning activities such as the way students make use of library spaces. Students used the library space mainly to complete their academic work and to engage in social activities. In terms of academic work, even though it is impossible to ensure the exact nature of the activities observe, it is identified that reading, writing in print, using a computer (PC and laptop) are highly use to perform academic work. Majority of library users were equip with knapsacks or larger bags, printed articles and writing materials.

Observations on students engaged in social activities on the other hand showed that almost one quarter of them were involved in conversation. However, it is difficult to determine whether the said conversations were academic or non- academic in nature.
In addition, students did comment that the library is an appropriate place for them to engage in group study and also for socializing purpose (May and Swabey, 2015).

According to another study conducted at Kutztown University, in which a series of focus group consisting of roughly 50 undergraduate students were examined on how they use the library as part of the study. Based on the findings, two ways of library usage by students were identified, the library as study space and a meeting place and the library as place and the coffee shop. For the first finding, students opined that the library has become a suitable place for various purposes such as a quiet place for individual study as they were having distraction and interruption which impact their focus ability towards their study at their dorm room (Weber and Flatley, 2008).

Besides that, the library too provides a space for group study whereby students are able to make discussion and a great place to have meetings. It is also stated that the library is an important place as a social space. One of the students mentioned that she feels more comfortable to meet people in the library to work on group projects and she also said that it is a public place and study place instead of a personal and leisure space. These responses somehow have led to the idea of the library as place and the coffee shop. The library is all about environment and people visit the library because of its physical environment. This is due to the purpose of interacting with the others. Therefore there is a need for a place whereby people interact and work together on research. The only way to accomplish this was by having a coffee shop (Weber and Flatley, 2008).

**Design of learning spaces of the 21st century learners**

According to Kwong, et al (2007), space issues need to be considered because of the changes of students’ learning activities, styles and preferences. An advance in technology on the other hand, has led to latest demand and standards regarding library facilities and resources.

This study was carry out together by Centre for Learning Enhancement and Research (CLEAR) and University Library System (ULS). Two libraries were investigated, namely Lee Quo Wei Law Library and Chung Chi College Elisabeth Luce Moore Library. Several matters were identified and explored such as learning activities, learning preferences, technology use as well as strengths and weaknesses of the library. The results of these matters were retrieved from their implementation in the library learning spaces which were categorised into five areas such as individual study carrels, information commons and PC workstations, large study tables and chairs/ sofas, group discussion areas and outdoor learning areas and group study rooms. Even though the five areas were purposely designed for specific learning
activities, yet students still use those spaces according to their preferences (Kwong, et al., 2011).

The next study is related to the designing of flexible, user-friendly, full technical support informal learning space to meet the collaborative communication demands, self-exploration and extra-curricular interest expansion for enhancing learning concepts. Therefore in order to fulfil the said learning concepts, the Beijing Normal University Library adopted the method of using a series of software such as 3Dmax2014 and Sketchup2014, Photoshop CS6 to design the future informal learning space model. This design concept is called the “Smart Space” and it is categorized into:

- Dynamic and Static Balance
- Virtual and Real Combination
- Flexible Features
- Topic discussion area; collaborative, building the learning community.
- BNU Gallery; interactive, reflecting characteristics of the library
- Creative experience zone; flexible, supporting various learning activities
- Leisure service area; comfortable and intelligent perception service
- Personal learning area; personalized, meeting diversified self-study demands.

The design on these learning spaces were created in accordance to the theoretical principles and drawing on existing case studies of learning spaces, meanwhile the results of space design obtained were based on the integrated recommendations of teachers and students’ representatives (Yun et al., 2015).

Library infrastructure

Library space design is going through important changes on both layout and focus. In order to proceed with these changes the library needs to understand the specific needs of their patrons. In a study at Whitworth University Library on user preferences and library space, questionnaires were distributed and it is categorised into students’ usage of library space and collections, personal benefit from proposed changes perceived by students and the library improvement itself. According to the findings, it is identified that users still prefer printed library materials over digital ones. Apart from that the users like it better if the library could improve its Wifi services instead of accommodating too much space for computers since majority of
users go online using their laptops or gadgets. When it comes to space users somehow loved the idea of having a 24-hour study space connected to the library which allows them to access the space 24/7. Moreover, users also requested for more individual study spaces and spaces for group work with a zone between both strict quiet areas and work areas, and lounge-like area that supports casual reading, informal meeting and supporting both communication and collaboration culture period (Ojennus and Watts, 2015).

As a result the library director eventually implemented quite a number of changes to library spaces and facilities. This includes the offer of free coffee in the library during exam week besides placing baskets of earplugs around the library, purchasing portable standing desk for library use as well as providing more private rooms available during the same period (Ojennus and Watts, 2015).

According to Applegate (2009), she somehow agreed with the library as a campus space in which one is uniquely suited in meeting the vital needs for spaces among students together with both services and resources.

This is supported by Montgomery (2014), whereby it is stated that the existence of the new content format and access has encourage the shift of library space from collection focus to user focus since it provides more space for users and their learning. The library has become an informal learning space and it shows an inclination towards understanding the learning needs of users in order to ensure whether our space satisfy them.

Learner behavior

A study at Whitworth University Library found that the patrons still prefer printed formats compared to digital formats. This proves that their learning behaviour is more conservative in their resource format and information seeking preferences. The later identified that most of the patrons do prefer searching for electronic resources using their own devices rather than using the computers provided by the library. This is to indicate that they find it comfortable to get access to electronic resources via their own personal gadget. This scenario shows that the patrons practice individual learning pattern (Ojennus and Watts, 2015).

In contrary, Montgomery (2014) stressed that students tend to involve more in social learning activities such as involving themselves to interact, converse and work collaboratively.
Based on a case study conducted at The Chinese University of Hong Kong, it was found that there was an issue on ‘Individual versus Group-work’ at its library whereby most of the students did not show any indication that they were working together. Instead, they were working individually. It was also found that some students were not actually using every space provided for its original function. This showed that students are able to adopt a very different mode of learning in any types of space (Kwong, et al., 2011).

5. FINDINGS

Demographic Information

Table 1: Gender of Respondents

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>60</td>
</tr>
</tbody>
</table>

Table 1 shows the gender of the respondents. It is found that most of the respondents were female which carried the percentage of 60% and the remainings were male with the percentage of 40%.

Table 2: Age of Respondents

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 – 23</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>24 – 29</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>30 - 35</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 2 shows the age group of the respondents. It is found that most of the respondents belonged to the age group of 18 – 23 years old with the percentage amount of 70%. Meanwhile, 20% of them were between 24 – 29 years of age with the percentage of 20% followed by 10% for the age group of 30 – 35 years old.
Table 3: Level of Study

<table>
<thead>
<tr>
<th>Level of Study</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postgraduate</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>16</td>
<td>80</td>
</tr>
</tbody>
</table>

Table 3 shows the level of study of the respondents. It is identified that 80% of them were undergraduate students and the remaining 20% were postgraduate students.

Table 4: Name of Faculty

<table>
<thead>
<tr>
<th>Name of Faculty</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Cognitive Sciences and Human Development</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>Faculty of Social Science</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Faculty of Resource Science and Technology</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Faculty of Economics and Business</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Centre for Pre-University Studies</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Faculty of Computer Science and Information Technology</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Faculty of Applied and Creative Arts</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Faculty of Engineering</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Centre for Language Studies</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4 shows the name of faculties in which the respondents came from. It was identified that most of the respondents participated in this study were from the Faculty of Cognitive Science and Human Development with the percentage of 35%. This is followed by Faculty of Social Science (15%), Faculty of Economics and Business (10%), Faculty of Computer Science and Information Technology (10%), Faculty of Economics and Business (10%), Faculty of Computer Science and Information Technology (10%), Faculty of Applied and Creative Arts (10%), Faculty
of Resource Science and Technology (5%), Centre for Pre-University Studies (5%), Faculty of Engineering (5%), and Centre for Language Studies (5%).

Table 5: Year of Study

<table>
<thead>
<tr>
<th>Year of Study</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 5 shows the year of study for each respondent. It is found that most of them with the percentage of 35% were second year students. Meanwhile, 30% of them were studying in their first year followed by 20% of them in their third year and the balance of 15% in their fourth year.

Interview Results
Purpose of coming to CAIS
Based on the interview conducted for the study, it is identified that there were several purposes of students coming to CAIS. It was found that majority of the students visit CAIS to complete their assignments and that very few of them came to CAIS for other purposes, such as downloading movie, revision, doing work in general, finding journal, conducting group work or group assignment, coming just for the sake of the air-conditioner, using the photocopy services, meeting as well as searching for teaching materials. Meanwhile, the remaining purposes include research, doing group discussion, going online for non-educational purpose, searching for reference materials, searching for information, looking for books, studying, using the Wifi services and going online for educational purpose.

Attention grabber when entering CAIS
The results of the interview has identified that there were several matters which have become the first few things that grabbed students’ attention or few things that came to their minds when they first entered CAIS. It was found that most of the students are concerned with the Wifi services provided by CAIS and this is followed by their concern towards the amount of power sockets available at CAIS. Apart from that, there were too students who considered CAIS’ physical looks as one of the most obvious things which have grabbed their attention and this consists of the design of CAIS itself, the conduciveness of the learning environment as well as the building design and structure of CAIS. The remainings include the tables available at CAIS,
the noticeboard, the art exhibition area within the library, the ads that are presented at the lobby, the library temperature, the librarians, the Information Counter staff, and last but not least, the facilities that enable students to look for their library materials at ease.

Types of Learning Activities
According to the results of the interview, it was found that most of the students with almost half of them conducted group discussion at CAIS. Meanwhile, least number of them used the spaces offered within CAIS for group assignment, literature or journal review, watching Youtube for learning purposes, online learning, research, group project meeting and reading. Besides that, other types of learning activities which were also carried out by the students consist of completing their assignment, doing their revision, conducting individual and group study as well as searching for information online.

The Appropriateness for the Library to be Quiet
It was found that students agreed to the fact that the library should and should not be quiet for several reasons and this is applied to certain circumstances. The reasons given are as follows:

Reasons for the library to be quiet
- To avoid students not to disturb other students.
- Some students do not like noise.
- Concentration is important.
- Students need to focus and a peaceful environment is needed in order for them to complete their assignments.
- Students need to concentrate on their studies.
- Most learning tasks (i.e. assignments, projects and reading) need high concentration.
- It gives students the ability to focus on their learning.

Reasons for the library not to be quiet
- Students need to conduct discussions.
- It is a public place to learn and it depends on each individual to carry out their learning activities based on their own preferences.

Other reasons
- The library should have designated areas whereby students can be noisy so that they can have proper discussions with one another and work collaboratively in a more effective way.
- Quiet sections should be maintained, as different students have different studying styles and they may not appreciate too much noise in the library as this could be distracting for them.
Importance of Library Decoration
It was identified that almost all of the respondents agreed that library decoration is important. This is proven from the following responses:
- Library decoration makes students feel comfortable and it somehow shows the image of the library.
- It attracts students and made them stay longer.
- It makes students feel more relaxed.
- It builds up the learning spirit and similarly attracts people to come.
- It helps to improve the learning environment and is soothing to the eyes and helps the brain to relax.
- It motivates students to visit the library. If the library looks too dull, one may not want to go there as it could be perceived to be boring or a dead space which would affect their moods to study.
- It boosts up students’ learning.
- It creates an environment that is acceptable among students and this somehow encourages students to read.
- It affects students’ mood.
- It stimulates one’s memory, portrays calmness and relaxation and reduces stress while studying.

One of the students mentioned that library decoration is not important because it does not affect students’ learning. Another student stated that it is moderate and important with the opinion that good decoration might affect higher number of attendance but it does not affect much on learning environment. It is also noted that some students do not even bother about library decoration.

Elements of Creativity in Library towards Students’ Learning
It was found that almost everyone agreed that elements of creativity in the library do affect students’ learning. This is supported by the following feedbacks:
- It helps students to bring up ideas to do their assignments.
- It gives students ideas to start their assignments.
- It helps students to think or come out with brilliant ideas as well as helping them to be more creative and innovative.
- It motivates students to visit the library. If the library looks too dull, one may not want to go there as it could be perceived to be boring or a dead space which would affect their moods to study.
- It encourages students to come to the library to study and to do their stuff.
- It makes students to stay longer at the library.
- It brings peace to mind.
- It is important for studying especially those who are conducting individual study.
- It makes the learning processing smoothly.
However, certain students disagreed upon several reasons, such as:
- It is not compulsory since it is mainly for the purpose of relaxation.
- It is not necessary and not relevant especially for students conducting group study.
- Nothing actually affects students’ learning.
- Elements of creativity within the library have minimal amount on concentration.

**Furniture Arrangement towards Students’ Learning**

It is identified that majority of the students thought that furniture arrangement does affect students’ learning and this is due to the following answers:
- It is related to comfort issues among students when they are studying.
- Appropriate furniture makes it easier for students to search for books.
- Proper arrangement of furniture provides comfortable and conducive space for learning or studying.
- A proper furniture arrangement provides more space for students to learn.
- Tables and chairs that are arranged too close to one another may cause disturbance towards students conducting a discussion.
- Students need privacy.
- A space that is too rigid may not motivate a student to want to study or collaborate with one another. A wider space may encourage more collaborative activities among students.
- Furniture arrangements are applicable to learning activities. Certain furniture arrangements are only suitable for certain types of learning activities.
- A particular learning space will not be suitable for students’ learning if the furnitures are not arranged appropriately.
- It encourages the usability of the facilities.
- It helps students to concentrate on their studies if the furnitures provided are comfortable.
- The arrangement of the furnitures should suit the functionality of a particular learning area. This helps to boost up the learning process and similarly increasing learning productivity.

**CAIS in Accommodating the Learning Needs for Computer Usage**

It is found that the students did not think that CAIS fully accommodates the learning needs for computer usage. This is because the number of computers in CAIS is insufficient and some could not be used. Thus, the number of power sockets is not sufficient as well. There were also times when the Wifi usage did not satisfy the students. Since students nowadays prefer to use their own laptops and gadgets, it would be more appropriate, useful and meaningful for students’ learning if CAIS is able to provide a particular space with sufficient amount of power sockets whereby students are able to sit around and be involved with their learning in a comfortable manner.
Types of Learning Space Design in Encouraging Students to Learn
There were several suggested types of learning spaces design that encourage students to learn and giving them the good mood to learn, such as:

- Discussion rooms
- Café
- Space with peaceful environment.
- Space with lower temperature.
- Spaces designed with creative rurals on the wall.
- Quiet spaces for students to learn comfortably.
- A space whereby the students can easily discuss ideas with one another and a place that is well equipped enough so that the student is comfortable and will be able to spend several hours at a time there without having to leave the space to attend to other needs.
- Flexible space design where students are able to move the furnitures (tables and chairs) according to their preferences.
- Spaces with appropriate table arrangements.
- Spaces with neat and appropriate wall colour.
- Spaces with grid lighting.
- A quiet study area needs partitions, enough power sockets and cool coloured wall which create calmness and relaxation for students.
- A study group space needs to have tables arranged in a collaborative manner and power sockets are attached to each table and warm coloured wall is important for the inviting and stimulating mood purposes.
- A discussion/meeting room needs a proper table arrangement whereby the tables are arranged in a meeting setting and computers should be provided in each room and the colour of the room should be warm. The types of furniture must be checked and ensure that they are comfortable because it is important for those who sit in long periods.

Factors Contributing to get Students to Stay longer at the Library to Learn
There were quite a number of factors which contribute students to stay longer at the library to learn, such as:

- The availability of good lighting, good air flow, and good internet connection.
- Suitable temperature
- Sufficient power sockets, tables, good Wifi connection and maintaining the level of quietness.
- Comfortable surrounding
- Better facilities and better decorations in the library.
- A cheerful environment and perhaps there should be a mini café in the building itself. Students do need easy access to beverages and snacks.
- The availability of books, journals and thesis
- Comfortable tables and chairs.
Results of Students’ Satisfaction towards the Principles of Learning Space Design at CAIS

Table 6: Artificial Lighting and Natural Lighting

<table>
<thead>
<tr>
<th>Level of Satisfaction</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>11</td>
<td>55</td>
</tr>
<tr>
<td>Not Satisfied</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 6 shows the level of students’ satisfaction towards the artificial and natural lighting at CAIS. It was found that majority of the respondents with the percentage of 55% were satisfied with both types of lighting at CAIS. Meanwhile, only 40% of them were not satisfied and the remaining 5% has not comment regarding this matter. Those respondents who were not satisfied with both types of lighting commented that:

- There is not enough natural lighting in CAIS.
- Artificial lights are too glaring and are not bery comfortable on the eyes.
- Certain parts of CAIS have very dim lighting.
- The lights are not fixed or repaired immediately whenever it is damaged or broken.
- Some spots in CAIS do not have enough lighting for reading purpose.
- Transparent wall by the reading area is preferred in order to get more natural lighting.

Table 7: Colours and Shapes

<table>
<thead>
<tr>
<th>Level of Satisfaction</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>9</td>
<td>45</td>
</tr>
<tr>
<td>Not Satisfied</td>
<td>11</td>
<td>55</td>
</tr>
</tbody>
</table>

Table 7 shows the level of students’ satisfaction towards the colours and shapes of certain aspects within CAIS, especially those related to the wall, furniture, carpet, decorations and so forth. It was found that most of the respondents were not satisfied with the colours and shapes applied on certain aspects in CAIS and this carried out the percentage of 55%. Meanwhile, the remaining 45% of respondents seemed to be satisfied. Those who were dissatisfied stressed that:

- Some carpets are damaged.
- More decorations are needed on the wall and similarly, the walls need to be coloured with harmonic colours.
- The wall colour is boring and there is nothing to look at when students feel pressured while studying.
- The walls are dull and a bit worn out.
- The carpets should be changed.
- Furnitures are too old.
- CAIS is lack of decorations.
- Brighter colours for better learning.
- Posters of successful people and their story should be hung up on the wall. This helps to encourage students to study.

### Table 8: Comfort

<table>
<thead>
<tr>
<th>Level of Satisfaction</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>11</td>
<td>55</td>
</tr>
<tr>
<td>Not Satisfied</td>
<td>9</td>
<td>45</td>
</tr>
</tbody>
</table>

Table 8 shows the level of students’ satisfaction towards the comfort issues when using the spaces withing CAIS for their learning process. It was found that most of the respondents with 55% of them were satisfied with the level of comfort at CAIS and the remaining 45% were not satisfied. Those categorized as not satisfied had provided their very own reasons, such as:

- The temperature in CAIS is too cold and too hot at certain times.
- The cleanliness of the students’ toilets needs to be improved.
- The carpet used in CAIS starts to produce smell.
- The temperature in CAIS is higher at higher floors.
- The number of tables is not sufficient because CAIS is always full on weekends.

### Table 9: Flexibility

<table>
<thead>
<tr>
<th>Level of Satisfaction</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>Not Satisfied</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Neutral</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 9 shows the level of satisfaction among the users of CAIS, particularly the students. It was found that 70% of them were satisfied with the flexibility offered by CAIS, 20% of them were not satisfied and the remaining 10% got no comment on this matter. Those who were not satisfied had come out with their own comments as follows:
The spaces in CAIS are not flexible because its furniture arrangement is rather rigid.

- Tables and chairs should be moveable in order to put students’ learning as ease according to their preferences.
- Every table should be attached to power sockets.
- The furniture arrangement is too messy.

6. **DISCUSSION**

Learners need to be understood and it is important to learn about how people learn and how the technology has taken control over one’s learning. This somehow has brought changes towards the notions of effective learning spaces. We are well informed that space has an important impact towards both teaching and learning (Oblinger, 2006).

A study on learners’ demands and expectations for space at the library of Loughborough University showed that there were expansive trends and issues in which the library needs to concentrate on, especially its learning spaces. It indicated that there is the need for the library to make available the different learning spaces and to maintain the variation in space (Walton, 2006).

This study as a whole has clearly shown that students visit the library for its space in order to complete their work or tasks especially their assignment. Whenever students first entered the library, the first thing that came to their minds is the Wifi services provided by the library and the availability of power sockets at certain areas within the library.

In terms of learning activities, it is shown that students prefer to conduct group discussion when it comes to using the learning space. Students also opined that the library should neither be quiet nor noisy at certain times. This is because there area areas in the library where certain level of noise is allowed for the purpose of discussion or group work and there are certain areas of the library where silence is required especially for individual study and reading.

In addition, both library decorations and elements of creativity in the library however do affect students’ learning. This is due to the fact that they both made students feel comfortable and made them stay longer at the library and students were also motivated. Furniture arrangements too plays a vital role in ensuring that students are comfortable with the correct furniture selection as well as finding its use as appropriate for certain types of learning activities.

The principle of learning space design is very important when the creation of a learning space is needed. The principles comprise of several elements, such as lighting, colours and shapes, comfort and flexibility. These elements are important
in creating an appropriate learning space design for different types of learning activities. It is clearly shown that students prefer more natural lighting in the library and that the artificial lighting should not be too bright or too dim. Students also suggested the library to have brighter colours for better learning. The furnitures used in the library on the other hand need to be comfortable since some library users might be using them for long hours and that the furniture should also be flexible in order to enable students to sit in any appropriate setting according to their preferences.

7. **CONCLUSION**

It can be concluded that the library carries a vital role in providing the appropriate learning spaces which meet the needs of the 21st century learners. It is important for the library to look into several criteria needed in order to ensure that they fit into learners’ learning style. This is because the learning environment does influence the surrounding and affect a person’s learning. Therefore, the identified criteria has to be implemented in order for the library to offer learning spaces with suitable designs preferred by the learners themselves. This somehow in a way helps learners to achieve better learning outcomes.

**REFERENCES**


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