Examining the Development Processes of Learning Spaces in Higher Education

Nurkhamimi Zainuddin, Rozhan M. Idrus, Ahmad Farid Mohd Jamal, Helmi Norman, Harwati Hashim

Abstract: This study reports the developmental steps prior to the development of learning spaces in Universiti Sains Islam Malaysia (USIM). Space issues in higher education were usually considered either as part of space planning (which is aimed at providing adequate space for defined uses and maximizing their use once provided) or as part of campus planning and construction design. The findings report the level of design effectiveness of the learning spaces in USIM. The recommendation from learning space users will be taken into consideration in improving the design of the next learning spaces in USIM.

Keywords : Development Processes, Learning Spaces, Universiti Sains Islam Malaysia, Ubiquitous Learning, Higher Education .

I. INTRODUCTION

The study of higher education learning spaces in Malaysia has not attracted much attention from scholars or researchers; as learning spaces are rarely explicitly included in a capital project, unlike classrooms and other formal spaces [1]. Typically, learning spaces are not owned by any particular department or group; therefore, technological services are often lacking, except for wireless services. Learning spaces also suffer from a lack of precedents and there are examples of planned informal spaces to be used as models, although the number is increasing [2] [3] [4]. Unlike the school sector, where the design of learning spaces has been an ongoing concern [5], for example, several standard texts on teaching and learning in higher education [6] do not even mention the nature of learning spaces in passing. In work that explicitly emphasizes ' place ' or ' environment, ' context is usually related to ways of conceptualizing or arranging teaching and learning rather than physical arrangements. Instead, consideration of space in higher education has generally taken place either in the context of spatial planning or as part of campus master planning and architecture, rather than as a resource to be managed as an integral part of teaching and learning, as well as research and activities. More recently, the idea of strategic planning of the university estate has emerged, linking estate decisions to wider institutional strategic issues, but the dominant concerns were spatial use and financial efficiency. [7].

The emergent literature on learning spaces in higher education articulates a desire to better engage academics and other stakeholders in the conceptualisation, design and development of university spaces. Learning spaces in Universiti Sains Islam Malaysia (USIM), were erected to promote learning and teaching in a more dynamic way, where the learning process should take place both in and outside of classroom wall [8] It also meant to provide conducive space for informal academic discussions, debates and idea generation, and in the long run will help in the development of critical, creative and courage values among USIM students [9].

To examine these issues, the study investigated a selection of proposed mechanisms such as interview and survey that aim to support students' wider participation in learning spaces design processes. These mechanisms have been used to investigate the potential learning space vendors, form of activities which should be organized at the situated learning spaces, the design and furniture arrangement.

The initial proposal for USIM learning spaces was prepared by the Global Open Access Learning Centre, Immersive Technology and Quality Assurance (GOAL ITQAN), USIM on July 9, 2015. This proposal and the proposed design (figure 1) were presented to the Deputy Vice Chancellor (Academic & International) for initial feedback and improvement. The first learning spaces discussion was held on July 13, 2015, organised by the Centre for Information Technology (PTM). Subsequently GOAL ITQAN has conducted site visit together with the administrative members of the faculties involved on 10 and 11 August 2015 to identify several areas suitable for the development of learning space.

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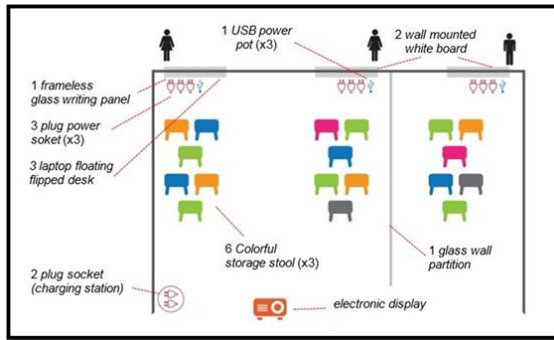*Blue Eyes Intelligence Engineering*
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Figure 1. Proposed design

Following deliberate discussion with the respective faculties, 4 units of learning spaces (figure 2 to 5) have been at:

    a. Faculty of Leadership and Management (FKP)
    b. Faculty of Quranic and Sunnah Studies (FPQS)
    c. Learning space at Faculty of Sharia and Law (FSU)
    d. Faculty of Medicine and Health Sciences (FPSK)

The arrangements of tools or sitting design for these 4 learning spaces are different from one another following the needs and specifications set by the respective faculties.

Figure 2. Learning space at Faculty of Leadership and Management

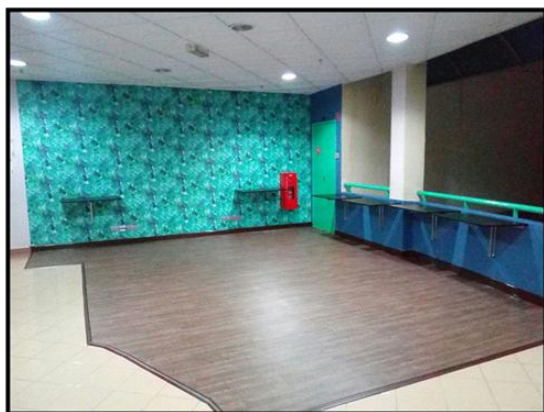**Figure 3. Learning space at Faculty of Quranic and Sunnah Studies**

Figure 4. Learning space at Faculty of Shariah and Law

Figure 5. Learning space at Faculty of Medicine and Health Sciences

II. RESEARCH OBJECTIVES

The objectives of this study:

i. To investigate the level of design effectiveness of the learning spaces in USIM.

iii. To gather the recommendation from learning space users to be utilised on the design improvement for the next learning spaces in USIM.

III. MATERIALS AND METHODS

A. Research Design

Survey were grouped into 4 main parts namely the demographical data comprised of 5 questions, the design effectiveness of the all 4 learning spaces comprised of 7 questions, while the relevancy of learning spaces towards educational activities represented by 6 questions. The remaining 3 questions reflect the general acceptability of the available learning spaces to the respondents.

This survey uses 5 Likert scale questionnaires, with the qualitative values is defined as below:

    1. Value A: 1 represents 'Satisfactory' level, 2 for 'Poor', 3 for 'Fair', 4 for 'Good', and 5 for 'Very Good'.

    2. Value B: 1 represents 'Very not suitable', 2 as 'Not suitable', 3 as 'Fair', 4 for 'Suitable', and 5 for 'Very Suitable'

These numbers are supported by an open-ended question asking for recommendations to improve the available learning spaces.

B. Sample and Data Collection

This study set open to all USIM students, academics, and administrative staff. Targeted participants are those who have utilised these 4 learning spaces. Data collection were conducted using Google Form and was completed via online. Link to this form was circulated via several channels; e-mails, printed posters and online banners. E-mails were sent via USIM staff mail and general info mail (infoPRO) twice on 21st June 2016 and 19th August 2016, while printed poster with the URL and QR code linked to the online form were display on the learning spaces itself. Online banners were display in the GOAL-ITQAN, and faculties official website, and also on USIM learning management system (GOALS).

IV. FINDINGS

These results are based on 38 respondents who completed all the survey items. The data retrieved are then tabulate according to the objectives of this survey bearing the highest and lowest values of the data.

Table 1: Gender and age

Gender:			Age:		
Male	20	53%	13-25	16	42%
Female	18	47%	26-38	11	29%
			39-51	9	24%
			52-65	2	5%
	38	100%		38	100%

The demographical data of the respondents are determined according to the gender, age, the individual role in the faculty, and faculty they represent.

Table 2: Position hold in faculties and faculty represented by the respondents

Position:			Faculty:		
Academic	22	58%	FEM	1	3%
Student	16	42%	FKP	10	26%
Staff	0		FPBU	4	11%
			FPQS	9	24%
			FST	7	18%
			FSU	3	8%
			Tamhidi	2	5%
			FKAB	1	3%
			FPSK	1	3%

The design effectiveness of the learning space was measured according to the ambience, colour of the wall and furniture, tools (writing board, stools, and wall plug), positions of the tools, lighting, location of the learning space, and conduciveness. The results are shown in Table 3 to Table 9.

Table 3: Satisfactory level for the ambience

	Number	Percentage	Cumulative %
1. Satisfactory	1	3%	53%
2. Poor	8	21%	
3. Fair	11	29%	
4. Good	11	29%	47%
5. Very Good	7	18%	
	38	100%	100%

Table 4: Colour of the wall and furniture

	Number	Percentage	Cumulative %
1. Satisfactory	1	3%	37%
2. Poor	8	21%	
3. Fair	5	13%	
4. Good	13	34%	63%
5. Very Good	11	29%	
	38	100%	100%

Table 5: Satisfactory level for the tools (writing board, stools, wall plug)

	Number	Percentage	Cumulative %
1. Satisfactory	1	3%	39%
2. Poor	9	24%	
3. Fair	5	13%	
4. Good	13	34%	61%
5. Very Good	10	26%	
	38	100%	100%

Table 9: Conduciveness

	Number	Percentage	Cumulative %
1. Satisfactory	1	3%	55%
2. Poor	11	29%	
3. Fair	9	24%	
4. Good	12	32%	45%
5. Very Good	5	13%	
	38	100%	100%

The levels of relevancies provided by the learning spaces toward educational activities were measured according to the suitability of these spaces for group discussion, tutorial session, presentation, and group activities. The relevancies were also inferred by the participations of individuals during the activities, and the most common time of utilisations. Respondents can answer more than once for these 2 questions. The results are shown in Table 10 to Table 14.

Table 10: Relevancies provided by the learning spaces for group discussion

	Number	Percentage	Cumulative %
1. Very not suitable	3	8%	37%
2. Not suitable	6	16%	
3. Fair	5	13%	
4. Suitable	14	37%	63%
5. Very Suitable	10	26%	
	38	100%	100%

Table 11: Relevancies provided by the learning spaces for tutorial session

	Number	Percentage	Cumulative %
1.Very not suitable	6	16%	55%
2. Not suitable	8	21%	
3. Fair	7	18%	
4. Suitable	11	29%	42%
5. Very Suitable	5	13%	
Don`t Know	1	3%	3%
	38	100%	100%

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Table 12: Relevancies provided by the learning spaces for presentation

	Number	Percentage	Cumulative %
1.Very not suitable	6	16%	53%
2. Not suitable	7	18%	
3. Fair	7	18%	
4. Suitable	13	34%	47%
5.Very Suitable	5	13%	
	38	100%	100%

Table 13: Relevancies provided by the learning spaces for group activities

	Number	Percentage	Cumulative %
1. Very not suitable	3	8%	39%
2. Not suitable	4	11%	
3. Fair	8	21%	
4. Suitable	11	29%	61%
5. Very Suitable	12	32%	
	38	100%	100%

Table 14: Most common time of learning spaces utilisations

	Number	Percentage
Morning	17	30%
Afternoon	17	30%
Evening	17	30%
Late evening	4	7%
Night	2	4%
	57	100%

The general acceptability of the available and future learning spaces was measured by asking do they wish to see more learning spaces to be built in USIM, is it the right time to have learning space in USIM, and overall rating (from 1-5) for USIM learning spaces. The results are shown in Table 15 to Table 17.

Table 15: More learning spaces being built in USIM

	Number	Percentage
Yes	32	84%
No	6	16%
Don't Know	0	0%
	38	100%

Table 16: High time to have learning space in USIM

	Number	Percentage
Yes	33	87%
No	5	13%
Don't Know	0	0%
	38	100%

Table 17: overall rating for USIM learning space

	Number	Percentage
1 Lowest	8	21%
2 Low	3	8%
3 Neutral	9	24%
4 High	12	32%
5 Highest	6	16%
	38	100%

The result of open-ended question allows the researchers to gather more feedbacks from the learning spaces visitors and users (translated from the real transcripts) as shown on table 18.

Table 18: The result of open-ended question

	Feedback
1.	Students need more conducive learning spaces with WiFi
2.	USIM needs to have learning space because it will help students to discuss.
3.	USIM should help on the budget for any faculty that still does not have any learning space like in FST. The students in FST have no proper room for discussion while waiting for the next lecture like in FPQS where they have proper room with bench for students to study and discuss.
4.	Provide a computer and printer for the use of all students. It is easier for the learning activities and session.
5.	Is there any learning space as above picture provided in Tamhidi Centre? Our students at the moment are using the marble benches outside of the cafeteria to conduct group meetings.
6.	Sometime the discussion turns out too noisy.
7.	Improve the Colour of the wall and furniture. I would recommend the use of glass door/divider, lots of white space with wall skirting. 1-2 colours on borders. Use classy wall colours. Best to consult some interior designing experts or at least staff at architecture program.
8.	A more up to date learning spaces are required in USIM in support of OBE and interactive teaching and learning activities. Learning spaces of private institutions/universities/colleges can be of examples.
9.	Build a divider to separate each learning space. Provide 1 or 2 power outlet for projector/multimedia usage.
10.	Make it more friendly and practical for tutorial as the picture above does not display that at all. Not child-like colour. I mean the colour pallets above are not that suitable as it seems for kindergarten's students instead of higher education's students.
11.	Maybe we need to have more power points (sockets) at the learning space. Maybe we need to have more learning space in USIM; e.g. at every faculty/departments (if possible)
12.	I hope this learning space can press students to preparing more before they attend to lectures or tutorials.
13.	Probably could have this learning spaces in library as well. It would be more conducive (with air conditioning). I've visited this type of learning space in library in one of the UA in Malaysia (UTHM) and it is very convenient and conducive. Plus, the sitting arrangement could be vary (boardroom style, herringbone style, U-shape, hollow square, Japanese style etc) according to each room or spaces. Plus, would appreciate if there is a fixed LCD at that particular space because sometimes we need to use it and would be difficult to bring one since we have to loan it from the faculty and if we are not from that particular faculty the process of borrowing one would be a nuisance. Furthermore, it would be good to give tables and more spaces to write on (more whiteboard), would also be good if the learning space is not that formal (different from class setting).

V. DISCUSSION

53% (20/38) of the respondents are male and 47% (18/38) are female, with majority of the respondents aged from 13-25 represented by 42% (16/38), while the smallest proportion of respondents aged 52-65 with 5% (2/38). This result may suggest that majority of learning spaces users are younger audients aged below 25 years old, which might also logical to assume that this number represent the students.

53% (22/38) of the respondents are academics staff of the faculties, while 47% (16/38) of the respondents are students. The equitable numbers might suggest that the learning spaces were used both by the students and the academics.

High number of the respondents are from the Faculty of Leadership and Management (FKP); 26% (10/38), along with the Faculty of Quranic and Sunnah Studies (FPQS); 24% (9/38) is accord to the location of the two available learning spaces one in each faculty. The rest of the respondents come from 7 other faculties comprised by range of number from 3% (1 respondent) to 18% (7 respondents).

Studying the data on the design effectiveness on both learning spaces, most of the numbers are consider equal should we look at the cumulative percentages of low and high scores. Relating this number to the open-ended question, most significant different between high score to low score is on the colour of the wall and the furniture. While the number of high scores is 63% compared to 37% of low scores, respondents had suggested that the bright and cheerful colours used in the current learning spaces are not suitable for the higher education populations in the university. This aspect could be taken into consideration, as [10] reports that colours of the wall in a physical learning environment, could enhance and have reversed effects on cognitive load as students are conducting learning tasks such as creative problem solving or memory span tasks.

They also highlighted that the use of colour red and blue have different learning effects, where blue facilitated creative learning tasks, while red facilitated tasks related to memory and proofreading [11] [12] [10]. In addition, factors such as the height of the ceiling and level of noise have also been reported to enhance learning task performance [13] [14] The studies discovered that a high ceiling facilitates freedom-related concepts and enhances relation processing while a low ceiling facilitates item-specific processing and confinement-related concepts. With regards to noise, learning spaces with moderate noise enhances creative tasks, while a low noise accommodates specific tasks. In a related study, [15] found out that aesthetic and appeal were the most important factors in learning space design.

Intromitting input from architectural students is also a good suggestion that will be taken into account in the designing process of the next learning spaces. Factors such as

physical structural designs in terms of positioning the learning spaces in a more open area will increase levels of air ventilations and resolve the issue of high temperature problems during mid-day. Open spaces will also allow for more natural lighting which is beneficial in productivity improvement as deposited by [16]. Considering financial limitation, ethnographical insights, and security issues, some of the suggestion will be put on hold although it is a beneficial addition to the concept of future learning spaces such as to provide computers and printers at the learning spaces, or to add fixed LCD. Yet, as financial situations improve, technological integrations that provide rich and

meaningful educational affordances are an important factor in facilitating 21st century learning [16] [17].

Dissecting the data on the relevancy of academic activities to be conducted at learning space, highest score is for group discussion and activities which bear 63%, and 61%. These data might suggest that the design effectiveness will increase as the focus of learning spaces is to cater for group activities to vary the sitting arrangement such as in the form of boardroom style, herringbone style, U-shape, hollow square, or even Japanese style [1]. The use of moveable tables and chairs that can fit into several configurations will help this purpose especially in active and dynamic academicals activities. The time of the use are majority during the day light with only 11% (6/38) of respondent use these spaces at night and late evening.

This might suggest that faculty member utilised these spaces during waiting hours for lecture or students might also using this area while utilising the internet connection of the space.

Polling out the numbers on the general acceptability of the available and future learning spaces, 87% (33/38) of the respondents agree for more learning spaces in the future, and 87% agree that the development of learning spaces is in time to support vast learning style in higher education. Relating the high acceptability number to the average rating of the available learning space, this might strongly suggest that the learning spaces design need to be relooked and carefully detailed with the support of pedagogical expertise, psychological input, and architectural insight.

VI. CONCLUSION

In this paper, we have begun to lay a foundation for research investigation on the most effective and efficient design of learning spaces in university to cater for dynamic learning activities in Malaysian higher education. Our findings suggest that well designed learning spaces is necessary in each faculty as indicated from the high percentage of respondent answering, "yes should they wish to have more 21st century learning spaces built in USIM".

For future research, we should seek to understand more about the correlation of student time spend in the university to the utilisation of learning spaces, and the amount of group activities to student understanding in lecture session. This practice is in line with the deployment of hybrid learning techniques, flipped classroom methods, or event-based learning that will be the basis on pedagogical approach toward the 21st century learners. Physical and digital assessments in both physical and digital learning spaces should be also designed to investigate level of active learning interactions. This could be measured via physical measurement tools such as sensory tools (e.g. smartwatches) and digital assessment tools (e.g. social network analysis, refer to [18].

With the right approach, the entire USIM campus can have more 21st century learning spaces. Our growing understanding of how people learn affects learning spaces configuration and the technologies that support them.

The constructivist paradigm supplants the transmission of knowledge as a guide to learning spaces, encouraging more thoughtful planning of space. It also requires a proactive process to ensure value is provided by these learning spaces.

REFERENCES

1. Ellis, R. A., & Goodyear, P. (2016). Models of learning space: integrating research on space, place and learning in higher education. Review of Education, 4(2), 149-191.
2. Cleveland, B., & Fisher, K. (2014). The evaluation of physical learning environments: A critical review of the literature. Learning Environments Research, 17(1), 1-28.
3. Bower, M., Lee, M. J., & Dalgarno, B. (2017). Collaborative learning across physical and virtual worlds: Factors supporting and constraining learners in a blended reality environment. British Journal of Educational Technology, 48(2), 407-430.
4. Zainuddin, N., & Idrus, R. M. (2017). From TPACK to Learning Buffet: Developing a New Model for Open and Flexible Learning. Saudi J. Human. Soc. Sci, 2(4), 344-347.
5. Clark, H. 2002. Building education: The role of the physical environment in enhancing teaching and research. London: Institute of Education, University of London.
6. Light, G., and R. Cox. 2001. Learning and teaching in higher education: The reflective professional. London: SAGE Publications
7. Higher Education Funding Council for England. 2000. Strategic planning in higher education: A guide for heads of institutions, senior managers and members of governing bodies (00/24). Bristol, UK: HEFCE.
8. Alwi, N. H. M., Mahir, N. A., & Ismail, S. (2014). Infusing social media in teaching and learning (TnL) at tertiary institutions: A case of effective communication in Universiti Sains Islam Malaysia (USIM). Procedia-Social and Behavioral Sciences, 155, 265-270.
9. Harun, H., Abdullah, N., Wahab, N. S. A., & Zainuddin, N. (2017). The Use of Metalanguage among Second Language Learners to Mediate L2 Grammar Learning. Malaysian Journal of Learning and Instruction, 14(2), 85-114.
10. Choi, H. H., Van Merriënboer, J. J., & Paas, F. (2014). Effects of the physical environment on cognitive load and learning: towards a new model of cognitive load. Educational Psychology Review, 26(2), 225-244.
11. McCoy, J. M., & Evans, G. W. (2002). The potential role of the physical environment in fostering creativity. Creativity Research Journal, 14, 409–426Edwards, L., & Torcellini, P. (2002). Literature Review of the Effects of Natural Light on Building Occupants (No. NREL/TP-550-30769). National Renewable Energy Lab., Golden, CO.(US).
12. Mehta, R., & Zhu, R. J. (2009). Blue or red? Exploring the effect of color on cognitive task performances. Science, 323, 1226–1229. doi:10.1126/science.1169144
13. Meyers–Levy, J., & Zhu, R. J. (2007). The influence of ceiling height: the effect of priming on the type of processing that people use. Journal of Consumer Research, 34, 174–186.
14. Mehta, R., Zhu, R. J., & Cheema, A. (2012). Is noise always bad? Exploring the effects of ambient noise on creative cognition. Journal of Consumer Research, 39, 784–799
15. Ibrahim, N., & Fadzil, N. H. (2013). Informal setting for learning on campus: Usage and preference. Procedia-Social and Behavioral Sciences, 105, 344-351.
16. Nambiar, R. M., Nor, N. M., Ismail, K., & Adam, S. (2017). New Learning Spaces and Transformations in Teacher Pedagogy and Student Learning Behavior in the Language Learning Classroom. 3L: Language, Linguistics, Literature®, 23(4).Studies, 14(1).
17. Hashim, N. M. H. N., Alam, S. S., & Yusoff, N. M. (2014). Relationship between teacher's personality, monitoring, learning environment, and students' EFL performance. GEMA Online® Journal of Language
18. Norman, H., Nordin, N., Din, R., Ally, M., & Dogan, H. (2015). Exploring the roles of social participation in mobile social media learning: A social network analysis. The International Review of Research in Open and Distributed Learning, 16(4).

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