Classroom design attributes: An investigation of staffs' and students' preferences

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ABSTRACT – This exploratory research utilizes interviews and online survey collected from staffs and students and examines on how lecturers and students perceive effective classroom design attributes at the University of Nottingham Malaysia Campus. The studies were carried out among students and staffs from all the faculties namely Engineering, Science, Arts and Social Science. The findings demonstrate how several classroom design attributes relate naturalness, individualization and simulation to students' learning experience. In addition, this research highlights the importance of conducting assessment on classroom redesign initiatives to justify and improve classroom spaces conducive to future generation of students.

1. INTRODUCTION

The design, facilities and conditions inside a classroom play significant role in ensuring both lecturers and students experience the best teaching and learning environment, respectively [1]. Literature studies have indicated several design attributes that affect these aspects namely naturalness, individualization and stimulation as described in Table 1 [2].

Table 1 Classroom design attributes.

Design principles	Attributes
Naturalness	Light, sound, temperature, air quality
Individualization	Choice, flexibility, connection
Stimulation	Complexity, colour, texture

Barret et al. [2] investigated the above attributes for primary school students (UK). Current investigation was conducted to collect information among undergraduate students and lecturers at the University of Nottingham Malaysia Campus to determine the key attributes affecting undergraduate classroom design.

2. METHODOLOGY

The studies were carried out at the University of Nottingham Malaysia Campus involving students and lecturers from the Faculty of Engineering, Science and Art and Social Science. It consisted of two parts namely a survey interview to identify the key attributes and an online survey. In Part 1, the interview consisted of 20 students and 11 lecturers (voluntary participants) from various academic backgrounds such as Science, Engineering and Arts & Social Science. During interview, the interviewees were asked about their opinions/comments on their teaching/learning experience in classroom, possible improvement, special requirement in classroom and concept of an ideal classroom etc. All interviews were transcribed and coded using NViVo software (ver. 10 released 2012, QSR International).

In Part 2, an online survey was created based on the feedbacks from part 1. Several key design attributes were identified, and an online survey form was created using Qualtrics software (Qualtrics Int., USA). A total of 374 students participated in the online survey. The survey consisted of 50 questions where the participant needs to rate based on categories such as 'Strongly Disagree', 'Somewhat Disagree', 'Neither agree nor disagree', 'Somewhat Agree' and 'Strongly Agree'.

3. RESULTS AND DISCUSSION

Analyses of interviewees' answers in Part 1 confirmed the design attributes as proposed by Barret et al. [2]. Outcomes from the survey show the following design parameters frequently raised from the interviewees such as (i) Quality and user-friendliness of equipment, (ii) Flexibility of furniture, classroom layout and equipment, (iii) Level of naturalness of the learning environment and (iv) Classroom decoration, especially in terms of walls colours.

However, among the three design principles, individualisation and naturalness seemed to be more important than stimulation as described by both lecturers and students. For example, although wall's colour was mentioned several times during interview, but it was not emphasized as an important attribute. Lecturers preferred plain, light, bright and white colours with minimal décor while students preferred more colourful walls and do not need to be white colour all the times. These very different preferences (lecturers vs students) could be due to generational gap as the current generation of students are more exposed to technology

and requires more stimulating environment [3,4].

Based on the above findings, an online survey questionnaire was developed, and 374 students responded. Key findings are as summarized in Table 2 for questions with more than 80% rating.

Table 2 Key findings from online survey.

Question	Agreed & strongly agreed
a) Blinds and/ or curtains should be present, of good quality, in good condition and easily accessible, so that the natural lighting level can be controlled manually.	91%
b) There would be a good sound isolation system, so that noise from the corridors and the outdoor areas would be eliminated.	94%
c) The shape/size of the classroom is such that I can hear the lecturer clearly wherever I am seated.	94%
d) The air conditioning should not be centralized; students and lecturers can decide the ideal temperature is in each lecture.	83%
e) Classroom should be adapted to various learning activities.	84%
f) Classroom should have ergonomic and comfortable furniture.	87%
g) The facilities available in the classroom should be well maintained.	95%
h) The desks/chairs should be comfortable, ergonomic and suitable for both left- and right-hand users.	89%
i) There should be more sockets or ports for electrical device/ laptop.	81%

Based on the above findings, it can be seen that students demanded several attributes such as follows:
a) Access to natural lighting/air conditioning which is controllable.
b) Good soundproof system.
c) Good classroom layout that enable students to hear/see clearly during lecture.
d) Flexible classroom equipped with ergonomic/comfortable furniture.
e) Well maintained facilities.
f) Classroom equipped with more sockets/ports for electrical devices.

4. CONCLUSION

The studies clearly indicate the needs to improve and take into consideration of key classroom design attributes in future. This is to fulfil the needs of both lecturers and students and also to improve the teaching and learning experience.

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