

The role of change in the educational environment on academic engagement using post-occupancy assessment (POE)

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Abstract

The environment of the architectural studio represents the fertile ground for the birth of creativity, skills and abilities that students acquire during the educational process in general, and therefore the study came to clarify the relationship between the spatial change of the educational environment and academic engagement using the post-occupancy evaluation theory (POE).

The study focuses on the effect of the change in the environment of the studio on the student and how to stimulate the process of engagement with the place, and thus confirm a sense of belonging that is reflected in the behavior of students and increase their desire to stay in the studio and work for longer hours compared to the previous period of change, the study adopted personal interviews as a source of data where questions were asked On the students, then the texts were entered into the program of cloud analysis and examination of the words presented in the texts of personal interviews, after which the students' responses were classified according to the most frequent words based on the changes in the physical environment that involve sub-changes Represented by rearranging the studio furniture and improved lighting, and the results of the study showed that changes in the studio environment is reflected positively on the level of engagement of behavioral and emotional, which motivated them to work and reflected on the results of academic achievement positively.

Keywords: academic engagement, post-occupancy evaluation theory , studio environment

1 Introduction

The change in the built environment is one of the important factors that affect the student and thus the process of academic integration, where learners' experiences are affected by the contextual aspects of the educational environment in terms of transferring knowledge and exchanging experiences. The learning experience in the design studio is among the topics of design research that attracted the attention of researchers in the world and statement of relationship Show the skills of expressing ideas and their performance in the studio environment.

One of the methods that the educational institution can adopt to enhance its attitude towards creativity is to use post-occupancy assessment (POE) to demonstrate the quality of the physical environment of the studio that architecture students have occupied for long hours compared to students of other disciplines that are limited to the curriculum of lectures, which contribute to developing the educational environment with participation It occupies it, especially students.

Accordingly, the study was structured in four sections, the first represented by methodology, the second theoretical side, and the third was the practical offender, leading to a set of conclusions and recommendations.

2 study methodology

2.1 the study Problem

The problem of the study was embodied in determining the effect of changes in the studio environment on the behavior of students and their engagement into the educational process

2.2 Objectives of the study

- Enabling building occupants to share design decisions with the designer by identifying the most important problems they encounter while using buildings.
- Identify the characteristics of the physical environment that stimulate their emotional integration and enhance their desire and love for the place.

2.3 The importance of the study

The importance of this study can be determined from the following:

- Providing a vision for decision makers on the role of post-occupancy evaluation in improving the internal environment of the educational institution and in the studio in particular.
- Clarify the possibility of activating the role of students in the design process, which contributes positively to the development of design skills and critical thinking of design requirements.

2.4. the study population

The study community is represented by the students of the Department of Architecture in the College of Engineering at Al-Mustansiriya University and the selection of the study sample, which was represented by the third stage students of the Engineering Department, where they number (15) male and female students at a rate of five male to ten female, where students spend an average of 12 hours per week in the studio for an architectural design courses As the heart of the educational curriculum to study architecture .

2.5 Methodology

Post-occupancy evaluation It is an approach that integrates various methods of practical study through the use of mixed techniques such as surveys, interviews and observations, and explaining the behavior of students occupying the studio that are used to collect data that is a source for collecting information related to design decisions, it is the main source for post-occupancy evaluation where the quality of the design is determined and the most important positive And negatives depending on a set of open questions that allow students to write texts according to their own experiences within the studio, through these texts students build their opinions based on their learning practices, and benefit from their own experiences, The aim of the evaluation was to get them to criticize the learning space, order, and style in the studio, and thus rethink the space of the studio and identify problems and evaluate them for the purpose of trying to modify them. With regard to the current study, the focus was on organizing the studio and lighting furniture as variables that affect students 'behavior and their interaction with the built environment and thus their impact on Social interactions in the studio.

3.The main study variables

3.1 The educational environment:

The educational environment should foster the physical and mental state of student intelligence, which includes all physical, mental and emotional conditions as well as social and cultural factors that influence learners' development.[1]

informed and organized planning of the components of the educational process has a clear positive impact on the success of this process, by taking into consideration the learner and the circumstances of the educational environment in which he learns and interacts with its components, and recent studies in education emphasize the importance of making the learner a focus of the educational process and considering educational institutions With all its elements (teaching, curriculum, educational goals, teaching methods, and teaching aids) that interact with the components of this environment, stimulating its senses and stimulating its mental and emotional perceptions, which leads to cognitive achievement and acquisition Varied experience and expertise.[2]

The educational environment represents an important element of the educational process in general and the communication process that creates an interaction between (the teacher and the learner) in particular, as the educational environment contributes to the continuous dynamic interaction between other elements and the creation of an auxiliary position to cause the various effects of the learner in order to gain educational experiences and amend its behavior in the desired direction .[3]

Therefore, attention must be paid to the design of the educational environment, especially with regard to its components and requirements such as (lighting, temperature, furniture design, and the process of distributing them according to the mechanism of the learner's body and work requirements, as it should be taken into consideration consideration of the study of the extent of the educational environment in providing the learner with information, educational experiences, and technical skills and free from distractions such as noise from loud sounds inside or outside the educational environment .[4]

It is clear from the above the importance of the educational environment as a place that enhances interaction and communication between peers on the one hand and students and faculty on the other hand by constantly creating dynamic interaction between other elements and helps in providing the learner with information, educational experiences and technical skills.

3.2 Architectural educational environment:

The performance of the studio is developed by providing a psychosocial context that provides sufficient opportunities for students to express their desires and success in the studio. In addition to developing students' skills and creativity by involving them in cooperative activities and keeping them under the supervision of faculty members.[5]

The researchers (Dewey, 1981, Anthony, 1991) observed that diversity of resources used for teaching, and the use of a more student-centered ideology rather than a directed ideology, which provides an opportunity for students to represent knowledge or interpret work as it works on projects and assignments. With this design drawing in mind.[6]

Hannafin (1992) suggested describing the educational environment as a system that uses tools, techniques and resources for learning, is the first step to understanding the design studio as an educational environment.[7]

As individuals can use the resources available to understand things and build meaningful solutions, it is the place where the components of the educational process - faculty and learner - come together. [6]

This space must be equipped with some facilities that influence students and their performance. Previous studies have highlighted the importance of the school space in general and the need to redesign a studio to be conducive to modern technologies taking into account the human element (student and faculty) and the location that should be flexible.[8]

3.3 Design Studio in Architectural Education:

Schön (1988) defines design studio in particular:

"It is a virtual world that represents the real world of practice, but it is relatively free from its pressures and risks as students learn through it through work, to get to know the specialized practice, estimate the place in which they stand in relation to it, and map it, where they learn" practice "from practical training and tools. And the methods and media do these things under the supervision of the studio official who works as a trainer who clarifies, advises, and criticizes. They work with other students, who sometimes play the role of the coach. And while they integrate into the world of joint practical training, they unconsciously acquire some kind of learning in the background. They will become aware of it when they move to other places later.[9]

The design studio is still at the core of the educational structures in architectural schools all over the world, and is considered a base for architectural design practice. However, the main role of the design studio must be reviewed in the traditional educational architecture of architectural education, in order to respond to current social, economic, environmental, and technological changes .[10]

The design studio is the essence of architectural education, where the architectural student spends most of his day between (4-6) hours for two days a week inside a studio where he acquires new habits and behaviors by interacting with his colleagues, and obtaining his culture and ideology and

thus the feeling of the link between the design of the studio and the components of the courses Others are not much different. [11]

The environment of the studio affects his personality and composition, and his social personality is able to bear the workload and challenges of the future. Therefore, designing a studio is very important for the purpose of architectural education. The architecture design studio is unlike the private science design studio, as the architecture design studio is bound by many standards and laws that must be met to ensure the success of the educational process within the studio The studio is the world's smallest set of ideas, goals, values, teaching methods, techniques, and teaching aids that occur in architectural schools.[12]

3.4 Dimensions of engagement

Academics differed in determining the dimensions of the integration, some of them presented a two-dimensional model, while some presented three-dimensional. A study of Reeve (2012) was presented to describe the integration of students during learning activities as a constructive component that includes behavioral, emotional and cognitive aspects. It is proposed to add the integration with the delegation as an important new feature, which is defined as a constructive contribution for students in the flow of information they receive. So, the research will adopt this term (feature) instead of (dimension) in introducing the concept in the context of the research. (Reeve et al., 2012; Paris, 2004; Trowler, 2010). There are four features which include:

3.4.1 Behavioral engagement:

It is a judgment about the extent to which a student is actively involved in learning activities that involve: assessment, focus, interest and effort .[13]

Fredricks et al. (2004) define behavioral integration as an interaction based on an individual's participation in academic, social, and extracurricular processes in an educational institution in the context of multidimensional concepts and is one of the features of integration, which is used to determine whether student participation completely in all of the academic activities provided by the institution as well as the curriculum .[14]

As students who integrate behaviorally usually conform to the rules and behavioral norms such as attendance and contribution, and thus the absence of subversive or negative behavior. It refers to students' special behaviors related to learning, such as focus, exerting effort and taking initiative, being continuous in facing failure and following the rules and positive interaction with teachers and peers among others (Conner, 2011). Researches indicate that the behavioral dimension is likely to lead to greater academic achievement (Hattie, 2013) as a mediator between contextual factors and desirable learning

outcomes. Behavioral inclusion can be increased by changing aspects of the learning environment .[15]

3.4.2 Emotional engagement:

Emotional engagement was defined by Fredricks et al. (2004) as focusing on how students interact and deal with the educational institution and includes feelings of belonging or evaluation or a feeling that he/she is important to his/her educational institution, as well as an appreciation of success in study-related outcomes (Christenson et al., 2012). Furthermore, emotional engagement focuses on the extent of positive/negative reactions to faculty, peers, academics, and the institution in general. As it is assumed, positive emotional integration contributes to students' relations with educational institutions, i.e. college and university, and affects students' desire to study and merge into other activities related to the institution. Students who integrate emotionally enjoy emotional reactions such as enjoyment and a sense of belonging .[16]

3.4.3 Cognitive engagement

It is a matter of student will, that is, how students feel about themselves, their work, their skills, and the strategies they use to perfect their work.[17]

Teachers may be knowledgeable with the student who works always hard but seems unable to learn effectively, as this student is integrated into the behavior, but not merged cognitively. In other words, just because students are working on the task at hand, does not mean they are learning.[18]

It is important to note that this effort participates in both behavioral and cognitive definitions of inclusion, and in this sense, cognitive engagement refers to the quality of student engagement, while absolute effort indicates the amount of their participation in the task, whereas the inclusion of cognitive engagement makes a significant distinction between students' efforts to do work and the effort that focuses on understanding and mastery. Fredricks et al. (2004) defined it as student investment in the educational institution and learning processes, as a cognitively engaged student is an optimistic, strategic, and willing student to make the necessary effort to understand complex ideas or master difficult skills.[19]

3.4.3 Cognitive engagement

is often concerned with the extent to which students invest in learning and whether they are willing to work additional to obtain better academic results, and this is what the author referred to cognitive engagement is a self-organized method or strategy of learning in which students use Metacognition Strategies for planning, monitoring, and knowledge assessment.[20]

Connell & Wellbron (1991) and Pintrich & De Groot (1990) have agreed that there are three components of self-organized learning in the classroom: Metacognitive strategy for planning, monitoring and modifying learning. Managing and controlling efforts of learning and academic assignments. Cognitive strategies that students use for learning, remembering, and learning tasks .[21]

3.4.2 Agentic Engagement:

It is the extent of trying to enrich the learning experience rather than just receiving it negatively as given .[21]

T.seng (2001) has claimed that in this kind of engagement students deliberately create and personalize what they learn and define conditions under which learning takes place, where students demonstrate initiative, ask questions, express what they need, make recommendations regarding learning goals and topics, make teachers know what they want and what they care about, identify learning resources and opportunities, ask for clarifications, and find options.[22]

The aforementioned features include the idea of engagement, as it is an effective participation that requires activity and a sense of meaning and feelings, where dividing the concept of student engagement into multiple features enriches the information because it allows clarifying the term in a more clear and practical way, as it has become easier to measure student engagement or testing it experimentally, which included an important note, that is the students' focus on the task, investing in effort, and continuing to face difficulties. Reeve (2012) presents a model for the dimensions of engagement during the process of effective learning, where the model is characterized by four distinct features, but they are very closely related with each other and complement to each other.[13]

3.5 Post Occupancy Evaluation POE

Post-occupancy assessment is defined as a systematic evaluation of the performance of buildings after they have been built and occupied for some time, and it has also been specifically defined as a process of systematically collecting and analyzing data in comparison with clearly stated performance standards related to occupied busy environments. [21]

Friedmann presents an anthropological component when defining a POE as "an assessment of the degree of satisfaction of the designed building and supports the explicit and implicit human needs and values of those occupying the post design of the building [20]

From an architectural perspective, the Royal Institution of British Architects at RIBA defined post-occupancy assessment as "a systematic study

of buildings used to provide architects with information about the performance of their designs, building owners, and users with guidance to achieve their best already” (RIBA, 1991), as well The post-occupancy evaluation methodology can be defined as a proposed process for identifying and resolving problems that were not observed during the design process, and which were ignored during construction but observed at the time of occupancy; thus, it is a process oriented towards increasing environmental performance. [20]

As you know, it is a process that involves a rigorous approach to assessing the technological and anthropological elements of the building in use, as it is a systematic process guided by research that covers human needs, construction, performance management and facilities, where this change can be explained by the complexity and dynamism of the relationship that humans have with their built environment. [22]

4. Analysis

After a set of open questions were asked to the students of the Department of Architecture at the College of Engineering / Al-Mustansiriya University, the texts were organized and collected in one text for the purpose of inserting them into the cloud analysis program within the site <https://www.wordclouds.com/>, where letters are excluded Traction and also the words (this, but, as well, and, or, like) are raised from the text to identify the words that express the intended study variables and confirm the fulfillment of their hypothesis by repeating them within the text according to the students' answers, 863 words obtained from the texts were evaluated and after Converting the file as pdf, inserting it and analyzing it in the program found that repetition of more words, sizes and shades of all Matt changes in line with the degree of its importance as it appears in the cloud, and the words often used by students are (work, Motivated, belonging, desire ,, Belonging, lighting, place, arrangement) which emphasizes the effect of change and organization on the students' behavior, motivating them, and increasing their desire to work In the studio for longer hours due to the effect of the changes that have been made in the environment of the studio according to the semantic vocabulary of behavioral and emotional integration, which was strengthened through its repetition in the texts of student answers and the statement of the most influential changes including arrangement, lighting, and cleaning, Figure 1. Analysis of the content of the texts about the experience of changing in the studio environment.



Fig. 1. Analysis of the content of the texts about the experience of changing in the studio

5. Discuss the results:

After analyzing the content according to the indications of the vocabulary contained in the texts of the students' answers, it is clear the importance of the studio's environment in the students' lives and the duration of its impact on their achievement on the academic and social level. In addition to directing students to integrate emotionally with the effect of the way students sit and interact with group work in the design lesson, the role of changes to the physical environment was despite being determined by the space of the studio but it positively reflected on students and motivated them to be more in the pain Drawing.

The study experience is an important step to know the effectiveness and role of students as occupants in the design process and effective participation in expressing their opinion, support, motivation and empowerment to take a real role in addressing the problems that appeared in the studio and try to conduct other experiments for other educational spaces, which enhances the efficiency of educational buildings.

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