

# Characteristics of Physical Environment in Arabic Classroom: A Preliminary Study in Malaysian Public Universities

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## Abstract

This study discusses the characteristics of the physical environment in the classroom at Malaysian public universities. The study of the physical environment is essential because the mastery of Arabic learners is crucial. Research is usually done only on aspects of teaching and learning. While aspects of the environment are rarely found, therefore, this study will describe the characteristics of the physical environment conducive to teaching and learning in the classroom at Malaysian public universities. A total of 494 students from eight Malaysian public universities responded to the questionnaire distributed. This study uses descriptive quantitative research methods. The instruments are composed of four structures, namely furniture and equipment, lighting, technology and air quality indoors. The researcher uses the Statistical Package for Social Science (SPSS-22) software for factor analysis (EFA), and factor validation analysis (CFA). The result found that the nature of the physical learning environment in the Arabic classroom has been interpreted from the analysis of the perceptual score obtained. Although students at public universities in Malaysia regard the Arabic language learning atmosphere in this classroom favourably, they wish to enhance the real learning experience in the classroom in all four constructs.

## Keywords

Physical environment, classroom, Arabic, Malaysian public university

## 1. Introduction

Studies related to the field of learning environment are usually more synonymous referring to the psychological and social environment or a combination of a psychosocial. However, many researchers are also aware that physical space or physical learning environment also plays an important role in studies related to the field of learning environment (Abell, Jung & Taylor, 2011; Beare, 2000; Buckley, Schneider & Shang, 2005; Che Nidzam Che Ahmad, 2011; Clarke, 2001; Cleveland & Fisher, 2012; Edwards & Clarke, 2002; Fisher, 2004; Stevenson, 2007; Taylor, 2009). Thus, research related to the field of physical learning environment is also very important and is the attraction of researchers in the field of learning environment around the world. The study of physical learning environment conducted by Cleveland & Fisher (2012) is related to the assessment of building design suitable for teaching and learning. While the study of physical learning environment conducted by Che Nidzam Che Ahmad (2011), Haliza Hamzah & Joy Nesamalar Samuel (2014) and Zandvliet (1999) is more specific that is related to students' perceptions of the physical learning environment found in the classroom or laboratory.

Studies related to the physical learning environment in the classroom or laboratory only involve matters related to the physical needs around students during the teaching and learning process (PdP). The physical learning environment generally includes three important elements namely; (i) learning facilities such as furniture and the location where the learning takes place, (ii) teaching materials related to objects used in the learning environment and (iii) finally equipment and materials frequently used in PdP (Tessmer & Harris, 1992). The physical learning environment is an object we can feel and discover, including sensory quality (Tessmer & Harris, 1992). Similarly, the characteristics of materials and students' perceptions of materials (Fulton, 1991) consisting of classroom furniture and equipment, showrooms, lighting, air quality and technology (Kilgour, 2006). A suitable and attractive physical learning environment in the classroom can increase the effectiveness of the PdP process. Attractive classrooms, proper furniture arrangement methods, specific floor properties and coupled with good lighting quality as well as sound-absorbing walls have been identified to have a positive impact on student achievement (Zaid, CM, Ismail, Z., Ab Majid, MR, Othman, MA, Salleh, AW, 2019; Tanner, 2000).

The physical learning environment in the classroom includes aspects related to (i) layout and physical design, (ii) sources of learning materials, (iii) learning spaces or angles, (iv) spaces on walls, (v) lighting and ventilation, (vi) furniture (vii) arrangement and (viii) hygiene (Che Nidzam Che Ahmad, 2011; Haliza Hamzah & Joy Nesamalar Samuel, 2014; Higgins, Hall, Wall, Woolner & Mc Caughey, 2005). The physical needs of students during the PdP process in the classroom to be studied in this study consist of furniture and equipment, lighting, technology and indoor air quality. The following is a detailed explanation of the physical components.

## 2. Literature Review

### 2.1 Furniture

Furniture, especially chairs and tables are important elements in the physical learning environment (Che Nidzam Che Ahmad, 2011; Haliza Hamzah & Joy Nesamalar Samuel, 2014; Kilgour, 2006; Mok, 2008). Chairs and tables must be adequate and in good and safe condition. While for comfort purposes, the size of the chair and table must be appropriate for the age of the student (Haliza Hamzah & Joy Nesamalar Samuel, 2014). Similarly, furniture related to the classroom, requires consideration of its function and is well used to support teaching and learning styles and methods (Bingler, Quinn & Sullivan, 2003; Haliza Hamzah & Joy Nesamalar Samuel, 2014). All this is needed so that PdP can run more effectively with all the equipment that can meet the needs of students. Imperfect and inappropriate furniture will have a negative impact on student learning because students will use it for a long time (Che Nidzam Che Ahmad, 2011). This prevents the PdP process from running smoothly. Furniture arrangement is also very important in the learning environment especially the arrangement of chairs and tables. The arrangement of chairs and desks for students is usually in a straight line, pointing towards the teacher so that students focus on what the teacher is teaching and can maintain student discipline and give the image of students as recipients of knowledge. This causes the teaching environment to dominate the learning environment and causes discussions between students and teachers to be limited (Getzels, 1975). Thus, a circular and semicircular arrangement is proposed so that a more interactive and student-centered PdP can be implemented successfully (Che Nidzam Che Ahmad, 2011; Knirk, 1979).

### 2.2 Lighting

The lighting factor is very important. Lighting is about the amount of light that fills the classroom which has the effect of lighting on students (Zaid, et al., 2019; Haliza Hamzah & Joy Nesamalar Samuel, 2014). Light conditions that illuminate the learning environment in general affect the quality of PdP in the classroom. The combination of natural light and incandescent light can produce good lighting (Barnitt, 2003). Perfect and appropriate lighting provides comfort to the student learning environment. Imperfect lighting will disrupt the student learning environment. Even lighting can affect a student's level of stress and emotion (Lackney, 1999). Light that is too bright or too dim can cause

the eyes to become tired causing headaches. In some classrooms, inappropriate whiteboard positioning causes glare at certain times or when the lights are on. This complicates the PdP process especially if teachers use it for teaching. Such disruptions can limit students' ability to focus on learning that causes confusion, slow responses that cause emotional stress (Che Nidzam Che Ahmad, 2011; Haliza Hamzah & Joy Nesamalar Samuel, 2014). Good and appropriate lighting is one of the main factors that cause the comfort of students in PdP and can influence student achievement.

### **2.3 Technology**

The field of education has a relatively significant impact because education is closely related to the development of information (Noor Azida Sahabudin & Mohamad Bilal Ali, 2010). Teaching and learning methods need to change in line with the era of information technology development. This is one of the efforts in diversifying teaching methods to ensure that students are interested in learning. Therefore, various learning environments need to be created to provide a learning environment that meets the needs of students. It is the responsibility of the relevant parties to provide a classroom environment that has complete technological facilities. Technology facilities are information obtained from reading materials, magazines, radio and computers (Zaid et al., 2019; Seri Bunian Mokhtar, 2012). Exposure to the technological environment can affect a person's cognitive, emotional and social development (Mok, 2008). Computers have been used in the educational process lately where computer applications are used to enhance and facilitate various adaptations of various media items in the teaching and learning process (Kurzel et al., 2003). This shows the role of technology in education is undeniable.

The rapid development of new communication and Information technologies has great potential to enhance the diverse ways of teaching and learning. Through the use of internet applications (email, electronic journals, telegrams, whatsapp, instgram, wechat, Web sites, etc.) various realistic and meaningful and interesting activities can be brought into the classroom. When the use of internet applications is combined with text, sound, graphics and animation, computer technology can enrich and expand teaching and learning activities in the classroom. Educators and parents make huge investments in computer labs because they think that computer technology can change the educational experience. The influence of this information technology has forced educators to consider more carefully how the presence of computers can change the physical nature of the classroom environment in either positive or negative ways (Zandvliet & Fraser 2005). Most organizations prefer to create a variety of new technologies aimed at improving the learning environment that allows each individual to choose learning strategies as appropriate based on their needs (Klein & Zimmermann, 2009). According to Mc Loughlin and Lee (2010), global learning in the 21st century has been transformed and shaped based on digital communication tools and network applications based on the characteristics of change, needs and demands of students. In addition, current studies also show an increasing need for technology to support and encourage students to control their entire learning process (Dron, 2007).

### **2.4 Indoor Air Quality**

Good indoor air quality as well as smooth air flow are important elements in a physical learning environment. The comfort of a classroom depends on conducive indoor air quality. Good and comfortable indoor air quality for a classroom is determined by the factors of temperature, humidity and air flow (Lyons, 2002). All three factors affect student attitudes and achievement (Tessmer & Harris, 1992). Good airflow needs to be emphasized so that students can focus fully during PdP. The climatic conditions of a country differ from each other. Because the climatic conditions in Malaysia are equatorial, ie hot and humid, temperature changes play a role in determining students' focus on PdP (Haliza Hamzah & Joy Nesamalar Samuel, 2014; Knirk, 1979). Hot classroom conditions will cause students to feel drowsy, uncomfortable and tired. Thus, Schneider (2002) and Earthman (2002) proposed a temperature range between 20-23°C (68-74°F) for a learning environment suitable for adult learners. Whereas for primary school children the temperature is recommended 20-22°C (68-70°F) because children are more active (Knirk, 1979) than adult students. Temperatures above 23°C (74°F) will have a negative impact on psychology which will stifle work efficiency and input (Che Nidzam Che Ahmad, 2011). This shows the importance of classroom temperature control for the comfort of the PdP process.

### **3. Methods**

This study uses quantitative methods aimed at determining the influence of dependent variables on independent variables (Hopkins, 2008). This study uses a quantitative approach for data collection and analysis. Since this study is in the form of a survey, then a set of questionnaires has been used as a research instrument because the survey is an effective and practical method to obtain information (Fowler, 1998; Chua 2006). Even the data obtained through the survey method is usually more accurate, in the range of sampling error, if the reliability factor to the level of .80 and above (Kerlinger, 1986). The use of this survey method has many advantages because it can measure opinions,

attitudes, beliefs, values and behaviors and can be generalized from the sample to the population (Creswell, 2005). Surveys were conducted using a set of questionnaires to obtain the required data. Survey methods use questionnaires to measure attitudes or opinions with any number of variables and in natural conditions (Wiersma, 1995).

The use of questionnaires as a medium to gather information because the questionnaire is more efficient and the target is more extensive, saving time and cost (Cohen, Manion & Morrison, 2007). Through the distribution of questionnaires the answers can be collected directly from the respondents in a short time (Chua, 2006). Thus, the researcher chose to use the quantitative method in the form of a survey by using a set of questionnaires because this method is most suitable for this study. This study is also descriptive because the researcher will provide information on the information collected by the researcher (Mohd Majid Konting, 2000; Wiersma, 1995). Because descriptive research is a method of collecting data to describe, compare and explain knowledge, attitudes, practices and behaviors (Ary, 1985). Therefore, the descriptive design is very suitable in this study because the findings of this study are information of current events and can be used to solve related problems for the future. Because this physical learning environment is conducted in an Arabic language class at a public university in Malaysia, the scale of the Physical Learning Environment questionnaire (Zandvliet & Fraser, 1999) is used as a measurement. This Physical Learning Environment (PPF) scale contains four elements namely; (i) furniture and equipment, (ii) lighting, (iii) technology and (iv) Indoor Air Quality. Thus, this instrument is very suitable for researchers to measure the physical learning environment for the Arabic language classroom in this study. Also, this study uses measurement level was developed by Nunnally (1978).

## 4. Results and Discussion

### 4.1 Results

The findings of the study are presented in the form of descriptive statistical analysis. SPSS - 20 (Statistical Package for Social Science) software is used to carry out the process of data filtering analysis, multivariate testing and descriptive analysis. A total of 494 respondents have provided information in this study. Level of physical learning environment in learning Arabic (BA) in Malaysian public universities which contains four elements namely (i) furniture and equipment, (ii) lighting, (iii) technology and (iv) indoor air quality. The mean score, standard deviation and mean interpretation of the entire physical component based on the set of questionnaires that received feedback by a total of 494 respondents are as shown in Table 1.

**Table 1.** Descriptive mean score, standard deviation and mean interpretation of physical learning environment

Elements	Mean	Standard Deviation	Mean Interpretation
Lighting	4.21	0.48	Very satisfied
Technology	4.08	0.54	Very satisfied
Indoor air quality	3.94	0.55	Dissatisfied
Furniture and equipment	3.90	0.54	Dissatisfied
<b>Overall Mean</b>	<b>4.03</b>	<b>0.41</b>	<b>Very satisfied</b>

Table 1 shows the mean values and the level of suitability of the overall physical learning environment is high ( $M = 4.03$ ,  $S.D = 0.41$ ) (Nunnally, 1978). Overall shows that Arabic language students in Malaysian public universities are very satisfied with the four elements of the physical learning environment. This physical learning environment is very relevant and needs to be maintained. The results of the analysis of the physical learning environment showed that the mean score for the lighting element had the highest level of suitability of  $M = 4.21$  and  $S.D = 0.48$ , followed by the technological element ( $M = 4.08$ ,  $S.D = 0.54$ ). These findings indicate that this element is very relevant and students are very satisfied with this element and need to be maintained in a physical learning environment. While the mean score for indoor air quality elements ( $M = 3.94$ ,  $S.D = 0.55$ ) and furniture and equipment elements ( $M = 3.90$ ,  $S.D = 0.54$ ) has a moderately high level of suitability. Arabic language students in Malaysian public universities are less satisfied with these two elements and need improvement. The findings of the above study clearly show that the level of physical learning environment in Arabic language (BA) classrooms in Malaysian public universities is very satisfactory. Details of each physical learning environment are discussed one by one below to give a clearer picture of the level of the physical learning environment.

### 4.2. Discussion

The lighting element is the highest followed by technological elements, indoor air quality and finally furniture and appliances. The findings of the above study clearly show that the level of physical learning environment in the Public University (UA) Malaysia as a whole is high. This shows that students are very satisfied with the physical environment that surrounds them. However, there are two elements that are at a moderately high level namely the quality of indoor

air and furniture and appliances. Shows students in Arabic language classes at Malaysian public universities are less satisfied with these two elements. Details of the physical learning environment will be discussed one by one below to give a clearer picture. Furniture and Equipment is the first element in a physical learning environment consisting of chairs and tables as well as furniture and other equipment related to the classroom. Furniture arrangement is very important in the learning environment so that PdP is more interactive and centralized so that students can achieve the learning objectives successfully. Findings show that students give a moderately high level of furniture and equipment (mean = 3.90 and S.D = 0.54). This shows that the students of the Arabic language class are still satisfied with the existence of furniture and equipment available in the classroom because the mean is approaching a high level.

Next, the second element of the physical learning environment is Lighting. Lighting involves the amount of light that fills the classroom to give the lighting effect to the students. The findings show that the level of suitability of the overall lighting aspect in the Arabic language class is high. This shows that students are very satisfied with the lighting aspect in their classroom. Students think that lighting in Arabic classrooms is good and appropriate. Perhaps the Arabic language class (KBA) studied uses a combination of adequate light lighting and natural outdoor light. The combination of these two lights is able to improve the quality of lighting (Barnitt, 2003). Similarly, the items "KBA can be darkened when needed" and "the light intensity of the lamp illuminates the whole room", students are very satisfied because KBA was found to have a lighting system that can control its intensity separately. The results also found that there are curtains that can protect the outside light from entering the KBA if needed.

The results of this study are in line with the study conducted by Che Nizam Che Ahmad (2011) who found that the study laboratory has a lamp that can control its intensity and can be darkened according to the suitability of teaching and learning process. Therefore, students are very satisfied with the quality of lighting in KBA according to the teaching and learning needs. Next the third element of the physical learning environment is Technology. Technology is information obtained from reading materials, magazines, radios, LCDs, ICT equipment and computers. The findings show that the level of suitability of the overall technological aspects in the Arabic language class is high. Students are very satisfied with the elements of this Technology and they think the technology used in Arabic language classes is good and appropriate. Thus, the Technology element has a very good suitability and is very satisfactory in the eyes of Arabic language students in Malaysian public universities, but there are also small aspects in it that can still be further enhanced such as the item "computer number is sufficient". Although this item has the lowest mean but the difference with other items is still not far. This shows that students are still of the view that the number of computers is still sufficient but needs to be increased.

Also, the fourth element of the physical learning environment is Indoor Air Quality. Indoor air quality is determined by temperature, humidity and air flow factors because a conducive physical environment requires good, comfortable indoor air quality and smooth air flow. Findings show that students give a moderately high level for the level of Indoor Air Quality. Students are less satisfied with this element of Indoor Air Quality. Perhaps this aspect is still at an unsatisfactory level. These findings are in line with previous studies (Che Nizam Che Ahmad, 2011; Gidding & Waldrip, 1993; Wan Noor Izah Abu Bakar, 2006) who found that classroom ventilation is not conducive and students are in a hot situation.

## 5. Conclusion

The findings of this study indicate that the overall level of physical learning environment is at a high level. Accordingly, these indicators can be used as a basis for relevant parties in Malaysian public universities to maintain and enhance the physical learning environment in Malaysian public universities. The study also found that Arabic language students in Malaysian public universities are very satisfied with the physical learning environment, especially the Lighting and Technology elements. However, this study also found that students were less satisfied with the elements of Indoor Air Quality and Furniture and Equipment. This finding is able to provide information to Arabic language lecturers about the strengths and weaknesses that need to be considered to further improve the learning environment to be more comfortable. Also, the physical learning environment gives more impact and influence to students to produce good achievement. Therefore, efforts to create a quality physical learning environment must be further enhanced. Therefore, a physical learning environment that meets the tastes of students should be made the main agenda. The physical learning environment has been proven to influence the achievement of Arabic language students in public universities in Malaysia positively and significantly.

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