Principals’ Perception on Classroom Physical Environment

Nur Hidayah Tjamilah Ramli*, Shamsidar Ahmad, Mohd Zafrullah Mohd Taib, Mawar Masri

Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA (UiTM), Shah Alam, Malaysia

Abstract

This paper is an on-going study on classroom physical environment which investigates users’ perception on classroom physical environment. The objective is to investigate principals’ perception on classroom physical environment and constraints that makes it difficult to be implemented. Therefore, principals’ perception is also crucial to understand more the school administration better as principals are the ‘controllers’ at school level. The principals are chosen based on selected secondary schools with permission from the District Education Officer (PPD) in Klang district. The method of this study was by using semi-structured interviews as they are experts at school level and are able to give more information about their perception.

Keywords: School environment; classroom physical environment; principals; perception

1. Introduction

Classroom environment has been a popular topic in academicians’ and educators’ discussion in order to improve the students’ performance. As early as 1970s, academicians and educators collaborate in finding a solution on improving students’ performance both in using social or physical environment. However, in Malaysia, there is a lack of study that incorporate physical environment in students’ performance. There are a lot of research on how to improve students’ performance in the social

* Corresponding author. Tel.: +6-013-343-9430; fax: +0-000-000-0000.
E-mail address: hidayahjamilah@yahoo.com.
environment, which includes the curriculum, interaction between teachers and students, students’ satisfaction in learning, and students’ discipline (Hamzah, 2003; Razak, 2006; Shoba, 2007). Although research on classroom physical environment is lacking, yet, some researchers incorporate a part of the physical environment in their research and how it affects students’ performance and discipline (Shoba, 2007; Razak, 2006). However, researchers do not investigate principals’ perception on classroom physical environment especially on classroom arrangements and their constraints.

Sanoff (1991) stated that the principal of school functions as the heart of the school community. The principal understands more about school community, school facilities and school management. Thus, this research investigates how the principal perceives classroom physical environment especially in terms of arrangement and facilities and what are the constraints that prevent it from occurring. It is crucial to understand the principal’s perception and the constraints in the implementation in order to improve the Malaysian school environment.

2. Literature review

Steele (1973) defines the environment as the surrounding context of human or subject of interest that includes the physical, social perspective and economic forces. Classroom environment serves as a medium for teaching and learning too. It can be divided into two parts, which are social environment, and physical environment. Social environment refers to students’ and teachers’ performance, satisfaction and enjoyment, sense of security and interaction between teachers and students. Physical environment consists of the facilities that are provided in the classroom. Classroom physical environment includes the classroom design, color, lighting, acoustic and air quality, classroom decoration, seating arrangement and others that make the whole classroom (Earthman, 2002; Leung and Fung, 2005; Tanner and Lackney, 2006).

Sommer (1977) stated many teachers believe that the classroom arrangement is not as important as the teaching and learning process. Nowadays, many teachers begin to realize that classroom arrangement is one way to improve the students learning environment. The decision to arrange a classroom should be made based on the teacher’s role and pedagogy used in learning subjects, how the classroom is managed, the existing space, and the learning activities in classroom (Rosenfeld, Lambert and Black, 1985). There are constraints that may limit the flexibility of classrooms arrangement. These include issues such as limited classroom space, types of furnishings provided, and district education policy (Sommer, 1977). In addition, the number of students that increase every year in Malaysian schools is the main issue of classroom physical arrangement.

In order to provide a conducive learning environment for students and teachers, it is important to understand the characteristics of the physical environment. It is also important to understand that physical environments are related to learning goals and the pedagogical approach used in teaching. Different teaching methods often reflect on the arrangement of classroom space and furniture. Taylor (2009) believed, “Just as different learning goals require different learning strategies, different instructional strategies require different learning spaces” (p. 134). Caine and Caine (1991) as philosophers believed that teachers need a flexible classroom space in order to use several methods in teaching such as problem solving methods or experience-based learning.

Gump (1987) stated that design, space and furniture arrangement of the classroom are factors in supporting the teaching and learning for teachers as well as the students. If the arrangement of space is unplanned and ineffective, it will lead to misbehaviour between students. Proshansky and Wolfe (1975) claimed that disruptive behaviours in the classroom can occur as a result of how the room is arranged. Loughlin and Suina (1982) established a study on the communication behaviour of the students within classrooms. They found that re-arranging furniture in the classroom, will lead to changes in students behaviours.
Moore and Lackney (1994) emphasized that high-density classroom will also lead to students' distraction and increase in their aggression. Furthermore, a high-density classroom affects students' academic performance. Moore and Lackney (1994) further pointed out that students in a low-density classroom were well-behaved and polite, showed greater participation in classroom activities and increased sense of friendship between colleagues. Although there is no relation between classroom arrangement and classroom density, classroom density will affect classroom arrangement. High density classrooms cause teachers to use a simple classroom arrangement such as the rows and columns arrangement. It is because rows and columns arrangement are suitable to use in high density classroom (McCorskey and McVetta, 1978). This arrangement also is used to control students' behaviours, and students' discipline within the classroom.

Gandini (1998) stated that the environment acted as the “third educator” in the school environment which was agreed by the teachers and principals. The educators perceived that classroom physical environment had a big impact on students’ performance and it served as more than beyond the physical aspect itself. It helps the students feel more comfortable to learn in the classroom, and it offers a space that encourages students to come every day. The environment indicates the way time is structured and the roles that are expected to play. The physical environment will reflect on how people feel, think, and behave. It dramatically affects the quality of people’s lives in the space (Greenm, 1988).

Sztejnberg and Finch (2006) had studied on the adaptive use of the patterns of secondary school classroom environments. The teachers perceived that teaching style is related with their physical environment. They used more students-centered style than teacher-centered style in the Science lab. However, they are still using the rows and columns arrangement in order to control the students' behavior. Sztejnberg and Finch (2006) conclude that it is important to understand teachers teaching styles and the teachers’ perception on their physical classroom. It can provide information to improve the classroom environment.

Clark (2010) in her book “Transforming children’s spaces” had been doing a research involving children’s and adult’s perception. She claimed that adults and children had a different view on environment. Adults are more concerned about how the learning process took place in the environment, whereas children consider more on how comfortable they feel in that place regardless of how the learning process is. However, both perceptions will lead to improving better classroom environment.

On the other hand, Sanoff (1991) studied on the environment with the involvement of teachers, students, principals and also school communities. The school communities include school staff, cleaners and PTA (Parents-Teachers Association). He had studied more about the architecture of the school environment as well doing a research of the principals’ perception. He insists that the physical environment itself is the world that people created and changed according to people’s needs and values. Therefore, principals’ perception is essential to be researched frequently because different schools have different problems and is related to the environment. People often find reasons to modify, or exchange or transform or upgrade their lives. He further noted that the application of research finding in principals’ perception to design and planning can have a positive impact on improving the quality of the environment.

3. Research method

This paper aims to investigate principals’ perception as school level experts on classroom physical environment. This paper is an on-going master research to identify an expert view on classroom physical environment. There are five school principals around Klang district who were chosen based on permission given by the District Educational Officer (PPD) in Klang district. This is a qualitative research approach and the findings of this research are gathered from the semi-structured interview method. According to Zhang & Wildemuth (2006), semi structured interview is defined as a guided interview that had prepared questions, but the interviewer can adjust the sequence of questions to be asked and add any
questions based on the participants’ answers. This paper uses semi structured face to face interview that was conducted with five selected principals as experts at school level.

The interview was done by making an early appointment with the participants and interviews were done in participating schools. The duration of the interview was about 45 to 60 minutes. The interviews were recorded using a digital recorder. The participants’ interview audio is transcribed using the software called Computer Aided Qualitative Data Analysis (CAQDAS), Nvivo. The coding queries and compound queries analysis in Nvivo software was used as analysis techniques. It also assists in generate the cognitive mapping that shows the relationship between nodes and theme from the interview data.

Interview questions were divided into several parts. In part one questionnaire, principals were asked on current classroom arrangement consisting questions of classroom density, effects and teaching techniques. In part two questionnaire, principals were asking about preferred arrangement, and a suitable number of students in one classroom. Part three consists of questions on effect and impact to students and teachers. The interviewer had shown some pictures of multiple classroom arrangements for principals to choose in order to answer the part two questionnaire.

4. Result and discussion

Based on the data analysis, the findings were present into two sections. Section one shows the form of the table on coding frequency. It is based on principals’ answers and perception towards the questions which are positive, negative or mix view. Whereas, section two discovered the relationship between principals’ perception and point of view in the form of cognitive mapping generate by Nvivo software.

Table 1 shows coding frequency of school principals’ perception on preferred classroom spatial and furniture layout. All principals agreed that the number of students in the current schools had increased every year especially in the Klang valley. Some schools have more students in one classroom than others. Jabatan Kerja Raya Malaysia (JKR) has standardized that each classroom has to limit to thirty (30) students only. However, due to the increase students’ enrolment every year, the number of the students in the classroom has increased. The principals’ point out that at present, they have up to thirty-five (35) to forty (40) students in one classroom. Sometimes for science classes, is up to forty eight (48) students in one classroom. Surprisingly, some schools in Klang district have fifty students in one classroom. In reality, students cannot pay attention to learning in such high classroom density. The principals positively agreed that the density of the classroom will affect students learning as well as teachers teaching. High-density classroom will reduce the teachers’ attention on students within the classroom. It also brings difficulties to teachers in controlling their classroom.

The principals agreed that the current classroom layout uses row and column arrangement as ninety nine percent (99%) of current secondary school using the same layout. Moreover, they agreed that the current layout does not facilitate teachers in a variety of teaching techniques and activities. Teachers always use the same techniques in teaching such as ‘chalk and talk’, brainstorming, and some pair work in the classroom. There are a lot of different techniques that teachers can use but due to constraint of space and number of students, teachers only using the same techniques in teaching.

In part two, the principals totally agreed that classroom arrangement need to be implemented in order to increase students’ attraction to the learning process as well to make learning more fun with various activities due to changing of arrangement in classroom. The principals also agreed that the decreasing number of students in one classroom from thirty five (35) students to twenty five (25) students may contribute to effective teaching and learning process. However, there are mix responses in answering the questions on PPPM 2013-2025 (Pelan Pembangunan Pendidikan Malaysia). Two principals agreed that changes in Malaysian curriculum will change the classroom arrangement and learning process. Two principals disagreed about this statement because they insist that classroom arrangement does not reflect
or affect the school curriculum. One principal perceived that some subjects may influence the classroom arrangement, but some subjects may not. It depends on the subjects, the teachers’ teaching techniques and the learning activities. Hence, PPPM may have an indirect relation in changing the classroom arrangement yet, changes on classroom arrangement will increase students’ attraction in learning than present.

Table 1. Coding frequency of school principals’ perception on preferred classroom spatial and furniture layout

<table>
<thead>
<tr>
<th>No.</th>
<th>Characteristics</th>
<th>Respondents Perception</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>1</td>
<td>Current Classroom Arrangement</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Number of students in current school classrooms</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Appropriate number of students for teaching and learning in the classroom</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Density of classroom: Is it effect on students/ teachers?</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Current classroom layout in Malaysian school</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Teachers can re-arranging furniture in the classroom</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Current layout will facilitate the diversification teacher teaching technique or not?</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Preferred Classroom Arrangement</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Preferred arrangement that can stimulate teaching and learning process?</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Does the layout will be changed because of changing education system (Pelan Pembangunan Pendidikan 2013 to 2025)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Effects &amp; Impacts</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Classroom arrangement affects teaching techniques?</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Classroom arrangement affects students' performance?</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Number of classroom affects teaching and learning process?</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>40</td>
</tr>
</tbody>
</table>

*Note: the figure is based on coding frequency mentioned by the experts in transcription using NVivo. The number shows how often participants express their perceptions on all the main characteristics.

On the other hand, changing classroom arrangement has a bigger constraint. The constraint is to reduce the current number of students with the increasing enrolment each year. Thus, principals agreed that reducing the number of the students will contribute to possibilities in changing classroom arrangement. Furthermore, financial cost on improving classroom facilities is one of the constraints that the government is facing now. It is not ideal to improve classroom facilities without using any cost yet, some principals believe that teachers can re-arrange the classroom using existing furniture.

The principals agreed that classroom arrangement will affect teachers’ teaching techniques. Based on the principals’ experiences in observing teachers, many teachers were comfortable to using the same teaching techniques. Only few teachers use different teaching techniques, yet it had its constraints in a variety of learning activities. The principals agreed that variety of spaces in one classroom can increase possibilities in teachers teaching techniques as well as a variety of learning activities. Students’ performance is also affected by classroom arrangement. Therefore, principals agreed that the changing classroom arrangement can increase students’ academic performance based on expected increase in their
attraction and attention when using the new arrangement. However, some principals point out that there is no evidence or experiment done in Malaysian school that changing classroom arrangement can positively increase the students’ attention in learning, still they think students and teacher will prefer, and it will increase both teachers and students performance in teaching and learning process.

Figure 1 illustrate cognitive mapping generate by Nvivo software showing the relationship between nodes and theme of principals’ answers. It shows that classroom space relates to classroom size, density and layout (arrangement). However, principals have no control over the size and density of classroom. Classroom size was standardized by JKR Malaysia whilst classroom density depends on the students’ enrolment every year by MOE (Ministry of Education). The principals preferred to implement new classroom arrangement which can stimulate teaching and learning process. However, they prefer the flexible classroom arrangement so that it can facilitate teachers in a variety of learning activities. The principals agreed that classroom arrangement will facilitate teachers in teaching techniques. They believed that the teachers are responsible in arranging their classroom suited to their teaching techniques and learning activities they conduct.

There are some constraints that could prevent implementation of classroom arrangement. The constraints are financial cost, increase in the number of students (students’ enrollment), two school
sessions in one day, and minimal spaces. Changes in the Malaysian curriculum (PPPM 2013-2025) indirectly affect classroom arrangement and teachers need to be creative in their teaching and learning process as well to attract attention from students while teaching process. The principals also agreed that current classroom arrangement influence teachers to use only ‘chalk and talk’ in their teaching process. This will make students not attracted to their studies. This problem directly creates another problem which is students’ bad discipline like truancy and misbehavior in the classroom.

The principals believed that variety of classroom arrangement can change the students and teachers mentality in order to create interactive learning activities and various teaching techniques. If this can happen, school students will enjoy coming and learning in school than seeking something new out of the school compound. The principals’ hope that a lot of studies and experiments can be done related to classroom design so it may incorporate and open the eyes of the school community, designers and architect to collaborate and realize the government aspiration.

Nevertheless, the principals understand that some constraint will be encountered and solved before classroom arrangement can be implemented. However, some principals believed that classroom arrangement and improving classroom facilities can be implemented in stages depending on the enthusiasm of the entire school community. It is because improving school facilities especially in the classroom is the responsibility of the school community with collaboration from the government.

5. Conclusion

This research concludes that principals prefer changes and implementation of new classroom arrangement even though there are a lot of constraints to be encountered. Furthermore, classroom arrangement indirectly affects both students and teachers’ performance in teaching and learning process. In order to implement various classroom arrangements, besides encountering the constraint, school teachers need to be more creative in arranging their classroom to suit their teaching techniques and learning activities. Various learning activities in the classroom will improve teaching and learning quality, enhance students’ participation in learning as well increase their performance both in academics and discipline.

Acknowledgements

The authors wished to acknowledge the Research Management Institute (RMI), Universiti Teknologi MARA (UiTM), Shah Alam for funding this research.

References


