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TVA Discomfort During Teaching and Learning Process in Malaysian Classroom.

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TVA discomfort is one of the factors that make the classroom environment uncomfortable and disrupts the teaching and learning process in the classroom. This factor has impact on the learning process of students in the classroom. students learning abilities will also be disrupted by the presence of TVA discomfort in the classroom. Semi-structured interviews have been held involving 7 high school students. The result shows that TVA discomfort can impact the teaching and learning process in classroom. Thus, a future study which to determine impact TVA discomfort towards 4C's skill student during teaching and learning process.

Key words: *Thermal, Visual, Acoustic, discomfort, Teaching and learning Process.*

Introduction

Most students spend most of their time in a classroom as the classroom is a place where students learn all the skills and knowledge they needed. In addition, the classroom is where they learn the intricacies of the outside world. Therefore, the quality of the classroom comfort is very important and needs proper attention. According to Mishra and Ramgopal, (2015) "comfort" is defined as "the state of being physically relaxed and free from pain".

Therefore, teaching and learning comfort levels refer to the surrounding of a learning environment that is comfortable and satisfactory to the students. The classroom comfort environment consists of 3 part namely thermal comfort, visual comfort, acoustics comfort (Krü and Zannin, 2004). A learning environment which is equipped with good TVA comfort aspects can increase teaching and learning comfort level (American Society of Heating, Refrigerating and Air-Conditioning Engineers, 2004). Teaching and learning comfort should

take place effectively to enable students to acquire knowledge and develop skills for their future career needs.

The learning environment can affect learning outcomes (Haddad et al., 2012). According to (Barrett and Zhang, 2009), the learning environment is where the learning process takes place in social, psychological and pedagogical contexts which can influence students' achievement and attitudes. In addition, the learning environment can also influence student behaviour and social interaction.

Many researchers find that TVA discomfort affects the performance of people whether they are at work, home or academic centres. The impact of TVA discomfort in the classroom environment is very disturbing and subject of concern to teachers, parents and students (Ackley et al., 2017). This situation can occur in schools, where poor indoor environment can affect teaching and learning process (Milanese and Grimmer, 2004).

Methodology

The research design is a survey study which has been analysed by qualitative methods. The interview process involved 7 high school students around the Klang Valley. 4 students from urban area and 3 student from rural area Semi-structured interview session was taking one by one and about 10 to 15 minute. The result from semi-structured interview was analysed using atlas.ti software.

In the interview questions, three main constructs were included: i) the importance of TVA comfort ii) TVA discomfort issues in the classroom iii) TVA discomfort problem needs to be resolved. Each construct was broken down into several items for interviewing respondents. For the first construct, 3 items were included; i) the need for comfort in the classroom ii) the type of TVA comfort should be in the classroom iii) type TVA comfort already in the classroom. For second construct, 2 items have been included; i) type of TVA discomfort in classroom ii) major TVA discomfort in classroom. For the third construct, 2 item has been included; i) what TVA discomfort needs to be resolved ii) student involvement in solving TVA discomfort problems in the classroom.

Result and Discussion

Interview Sessions Analysis

Theme: The importance of TVA comfort

The result from the interview sessions show that are all responded agreed that TVA comfort in the classroom are very important. One respondent said "I think it's very important because TVA's comfort helps me focus in the classroom and understand what is being taught".

Another respondent also said, “TVA comfort is important in ensuring that the teaching and learning process in the classroom is functioning properly”. To achieve the objectives of teaching and learning in classroom, one of the ways is to ensure that TVA's comfort is in an optimal state (Vilčeková et al., 2017). Ackley et al., (2017) also said that TVA's comfort can give impact to student performance in the classroom as well as assist teachers in the teaching and learning process.

One of the respondents said, “It's so important that I spend so much time in the classroom because here I spend time with friends and learning new things”. An average student spends 13 hours in a classroom one day (Fadeyi et al., 2014; Ghorashi & Darabi 2017). Most of the time they spend is studying and it is very important that a classroom should be in a very conducive state (Frontczak and Wargocki, 2011)). If the classroom environment is in a very conducive environment, the learning objectives can be implemented and achieved well (Vilčeková et al., 2017). Another respondent said “TVA's comfort in the classroom is very important to me because when the classroom is so hot, the heat makes my headache and I cannot focus on what the teachers are facing, and I am also sweating.” Sousa et al., (2012) state that TVA's non-conducive condition in the classroom greatly affects student health. It can be easily affected especially to young children. The immune system of children is not as mature as adults and they are in the process of growing up

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Theme : Problem of TVA discomfort

Besides that, the respondent also said "based on my experienced in the classroom, there was a TVA discomfort in the classroom. The high temperature in the classroom was one of the most common discomforts I experienced, and too dense classes cause me to feel uncomfortable in the classroom”. This statement was supported by (Sofian et al., 2015) said that the high number of occupants and the high temperature in the classroom interferes with the teaching and learning process in the classroom. Based on a study conducted by Trujillo and Sullivan, (2015), teachers can see the impact of high temperatures in the classroom is that students start to feel uncomfortable by fan themselves and they often wipe their sweat in the face.

“To munch lights in the classroom were also one of the causes of discomfort and disturbed me to see teachers teaching in the classroom”. Excessive lighting either natural or artificial, can affect the eyesight of the students and at the same time cause the student's performance to down (Tiesler et al., 2015). To increase student focus and improve their behaviours and emotions is through good lighting level in the classroom. “Noise interruption caused me to not answer the exam paper properly. One of the voices that disturbed me in the classroom was the voice of the next class. Road noise sometimes disturbs the classroom during the teaching and learning process”. Low noise levels in the classroom contribute to the comfort of the classroom and assist teachers in the delivery of teaching (Durap et al., 2015).

Respondents also said that an unstable environment temperature cause the thermal discomfort existed in the classroom even though the fan was already on at the maximum level. with the hot conditions, they could not concentrate on what the teachers were teaching them. This problem is supported that by Puteh et al., (2014) stated that a good classroom environment and good thermal comfort are one of the most important factors in the teaching and learning process as it involves students in activities that require students to understand a concept, ability to solve problems and attitudes towards learning. In this session, the respondents frequently cited that Sunlight from the outside entering the classroom causes a high glare and prevents them from seeing well in front. This result support by Axarli and Tsikaloudaki, (2007) which they research has shown that excessive sunlight entering the classroom through the windows causes high glare and disrupts the teaching and learning process.

Respondents agreed that interactions between teachers and students will be disrupted if there is noise. The quality of hearing and noise effect in learning environment is the main focus to the researchers in improve the acoustic comforts in classroom (Puglisi, 2015). A good acoustic environment is primarily achieved by the minimization of the contributions of noise from external sources. In addition, good communication is ensured when room acoustics and intelligibility parameters are in the acceptable ranges for teaching and learning purposes (Syed Yahya et al., 2014).

Some respondents said that among the reasons students do not attend class is because of the uncomfortable classroom environment such as the classroom being too noisy and the temperature too hot. Based on (Group, 1999) study of high school students' performance in the US, the reason for the decline in student performance is due to student absenteeism during the teaching process and the reason students are absent is because TVA comfort does not exist in the classroom.

Most respondents agreed that too many students as well as too narrow classroom space were causing TVA discomfort. One respondent said "I couldn't hear what the teachers were up because of the crowded class and the noise from the other students. It is difficult for me to focus on teaching in the front because I do not see what is written because it is hindered by the students in front. A conducive classroom is a classroom with optimized student numbers (Trujillo and Sullivan, 2015).

Theme : The problem needs to be fixed

The problem of TVA discomfort needs to be addressed as it affects the students in the classroom especially in their performance. Most respondents agree that TVA discomfort should be taken into account by the authorities. This is because it has an impact on the

teaching and learning process in the classroom. A respondent said that "the government should see this as a problem that should be addressed which as the lack of student comfort in the classroom will result in the achievement of learning objectives". A number of studies conducted by researchers in assessing student performance in the classroom found that among the reasons for declining student performance were uncomfortable environmental conditions such as temperature, noise and lighting (Almeida et al., 2015) (Haverinen-Shaughnessy et al., 2011).

There are many variables to look at that give a major impact to the classroom environment. One respondent said the school needed to look back at the causes that caused TVA discomfort in the classroom. There are various variables that can affect the indoor environment including: external condition, building (construction materials, furniture), building services (HVAC systems) and people and activities (HVAC use, cleaning) (Almeida et al., 2015). But the studies show that among these variables, daylight, temperatures, acoustics and indoor water quality (IAQs) are the four main variables that will determine the quality of the indoor environment (Ackley et al., 2017) (Dorizas et al., 2015). This is because they are related with the visual, thermal comfort and energy-efficiency design of a building (De Dear et al., 2015).

Conclusion

The study shows that respondents agreed, thermal, visual and acoustic discomfort negatively impact the teaching and learning process. Therefore, future research, based on problem identified in this research, impact TVA discomfort towards 4C student's skill in Classroom during teaching and learning process will be determined. Without the presence of TVA's comfort in the classroom, students focus will be affected during the classroom teaching and learning process. The impact of this problem, student performance being affected and student academic performance will be going down to provide TVA comfort in learning environment, a TVA comfort guideline in classrooms should be created to make sure the TVA discomfort can be minimize.

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