

# EFFECT OF ENVIRONMENT ON STUDENTS' LEARNING PROCESS AT A MEDICAL UNIVERSITY, MALAYSIA

## Research Article

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**Abstract:** The educational environment is one of the important factors in adult learning. Physical environment (too cold, too hot, bright, dark, noise), seating plan and visual distractions affect concentration and motivation of the learners in the classroom. This study measured the students' feedback on the effect of the environment on their learning in the classroom and explored which type of environment improves teaching learning in medicine. A cross-sectional study was conducted among Year 3 and Year 4 medical students at a private medical university, Kedah, Malaysia with a self-administered questionnaire to explore the effect of environment on learning medicine. Descriptive statistics and Chi-square test were used to measure the association between gender, year of study and agreement on environmental effect. Total number of medical students were 204, among them 40% was male and 60% was female with a mean age of 22.75 (0.89). Around 51% (n=104) of medical students were Year 3 and 49% (n=100) was Year 4. Students agreed to effect of environment on teaching learning in the classroom was 61.8% (n= 123). It was not related to their year of study with  $p=0.495$  and gender of the students with  $p=0.905$ . Students' preferable types of environment which improve their learning process were physical environment (not too cold, no noise, good lighting, better visibility) (61.8%) followed by favorable teaching and learning environment (audio visual equipment work, comfort of the seating, allow questions, interactive learning with friendly lecturers, no stressful) (29.3%), and combination of teaching learning environment and physical environment (8.9%) respectively. It is highlighted that the educational environment is one of the influencing factors on learning process of the learners no matter with their year of study and gender in this study.

**Keywords:** Educational environment, teacher-centered, student-centered, teacher-student interaction, effective teaching methods, classroom learning, Interactive method, e-learning.

## 1 Introduction

Health care professionals, medical and dental doctors are expected to provide safe, compassionate and competent health care to the patients (Benner, Sutphen, Leonard, & Day, 2010). Their role is complex, they need to make important decisions and demands high critical thinking and clinical judgment compared to decades ago (Cook, 2011). As teachers we need to prepare medical students to meet these demands in the competitive world where patients are exposed to internet and question the doctors and even sue them if any untoward event occurs. With advancement of technology the doctor patient relationship has changed from paternalistic where the patients accept whatever decisions the doctors make to mutual and consumer relationship where they demand for explanation for the decision and the fees incurred.

One of the important components of classroom learning is the social and communicative interactions between student and teacher, and student and student. The student should have the ability to ask questions without fear, share an opinion, agree or to disagree, challenge the teachers and these are fundamental learning activities. It is through these methods and through discussions, debate, interactions, a new concept can be formed and the learning objectives be achieved. An old method and assumption can be challenged and a new idea or method can be formed.

Teaching methods have changed over the years from the normal traditional didactic teaching to various other methods like problem based, role play, small group teaching, discussions etc.. Students especially from the health care sector need higher level of critical thinking for clinical judgement skills and patient care thus we have to change the method of teaching. Teaching and learning for health care professionals is highly complex and diverse and thus it is essential to use innovative methods to improve class room teaching and student learning.

Researchers have studied the relationship between environment and learning outcomes and (Haertela, and Walberg) found that there is a correlation between the learning outcome and psychological environment.

The purpose of this survey is to determine which type of method of classroom teaching that will benefit the students. Should we continue the traditional didactic teaching or use a certain type of method or a combination of methods.

### Research Study

1. What is the preferred teaching method that enhances student learning?
2. What are the barriers during class room teaching that affects student learning?
3. Does the experience of the teachers affect the teaching and learning in class room.

### 3. Background of the study

As technology advances the teaching of medical students should also be in par with it as we are now dealing with Y generation. Gone are the days where we were taught in the traditional method where we learn and regurgitate the facts. There was no formative assessment but only summative assessment. We need to change the approach of teaching to integrate classroom teaching by not only acquiring knowledge, but also developing critical thinking and clinical reasoning. Thus changes are needed from the old didactic teaching ( Brandon &All). We also need to utilize the present technology to provide and improve patient care. To maximize student learning, a diversity of teaching styles and a variety of methods are also needed.

#### 3.1 Hypothesis

**Null Hypothesis:** There is no difference between traditional teaching methods and others that involves critical thinking and clinical reasoning like problem based learning, clinical scenarios, case studies, discussions etc.

**Alternate Hypothesis:** There is a difference between traditional teaching methods and others that involves critical thinking and clinical reasoning like problem based learning, clinical scenarios, case studies, discussions etc.

#### 3.2 Research question:

What are the effective teaching methods to prepare the present day students that will benefit them so that they can face the changing environment and meet the demands of patient care.

#### 3.3 Objectives

- 3.3.1 To identify the type of classroom teaching preferred by the students and it's effectiveness.
- 3.3.2 To know if there is a difference between the type o class room teaching between year 3 and year 4 medial students
- 3.3.3 To know if there is a difference between the type o class room teaching between year 3 and year 4 dental students
- 3.3.4 To identify if there is a difference of opinions on the type of classroom teaching between the medical and dental students.
- 3.3.5 To make some recommendations on the type of classroom teaching that will benefit the students and also to improve the effectiveness and quality of classroom teaching.

### 4. Literature review

According to (Fink, 2003), the teachers need to help the students to take responsibility of their learning, support and facilitate them. He supports the traditional didactic teaching but suggests that there should be more interaction between the teachers and the students and incorporate new ideas. Williams and Calvillo (2002) suggests multiple teaching methods as there is a diversity of students and a positive environment while Gale (2006) suggests active student participation.

One of the qualities to be a great and an effective teacher is that he or she must be knowledgeable, competent, skillful and possess good qualities. To teach effectively, the teacher herself must have sufficient knowledge and it was noted that there is a relationship between the teacher's knowledge and the achievement of the students and this was rightly said by (Ball, 1991, p5). *'Teachers cannot help children learn things they themselves do not understand'*

Effective teaching can be judged by the progress and high achievement of the students even though there are many other factors like the student and teacher characteristics. One of the ways of assessing effective teaching of teachers is by feedback from students and their peers. We have to evaluate the teachers to identify their effectiveness and for which we need to use multiple approaches as identified by Goe, Bell & Little (2008). They are classroom observations by their peers of the principal, student's achievement and ratings, reports, feedback and teacher portfolios.

### 5. Materials and Methodology

#### 5.1 Study design

A cross sectional study will be used to gather all data for this study.

## 5.2 Location and time of study :

This study was carried out in AIMST University, Kedah state, Malaysia, for duration of approximately 12 weeks from June to August 2017.

## 5.3 Inclusion and exclusion criteria of the participants

The inclusion criteria were students from Year 3 to Year 4 registered in AIMST University from the medical and dental faculty. The exclusion criteria are students who are in year 1, 2 and year 5. Year 5 students will not be included as they are not staying in the campus and it will be difficult to get them.

## 5.4 Methods

This study will use a self-administered questionnaire which was developed based on the information drawn from the literature of types of class room teaching

The questionnaire is divided into two parts: questions on socio demographic factors and questions on the types of class room teaching. The participation is voluntary and a written informed consent will be obtained before the survey. Year 3 and 4 students are chosen as will have some knowledge and percepts of class room teaching after having spent 3 years in the university.

### 5.4.1. Variables :

The independent variable was the socio demographic factors which include the age, gender, ethnicity, faculty. The dependent variables are the type of class room teaching.

### 5.4.2 Data analysis

The data collected will be analyzed using SPSS trial version 22. The demographic data and the health risk behaviors will be described with the descriptive statistics. The chisquare test was carried out to elicit association of various socio demographic factors the type of class room teaching.

### 5.4.3 Sample size:

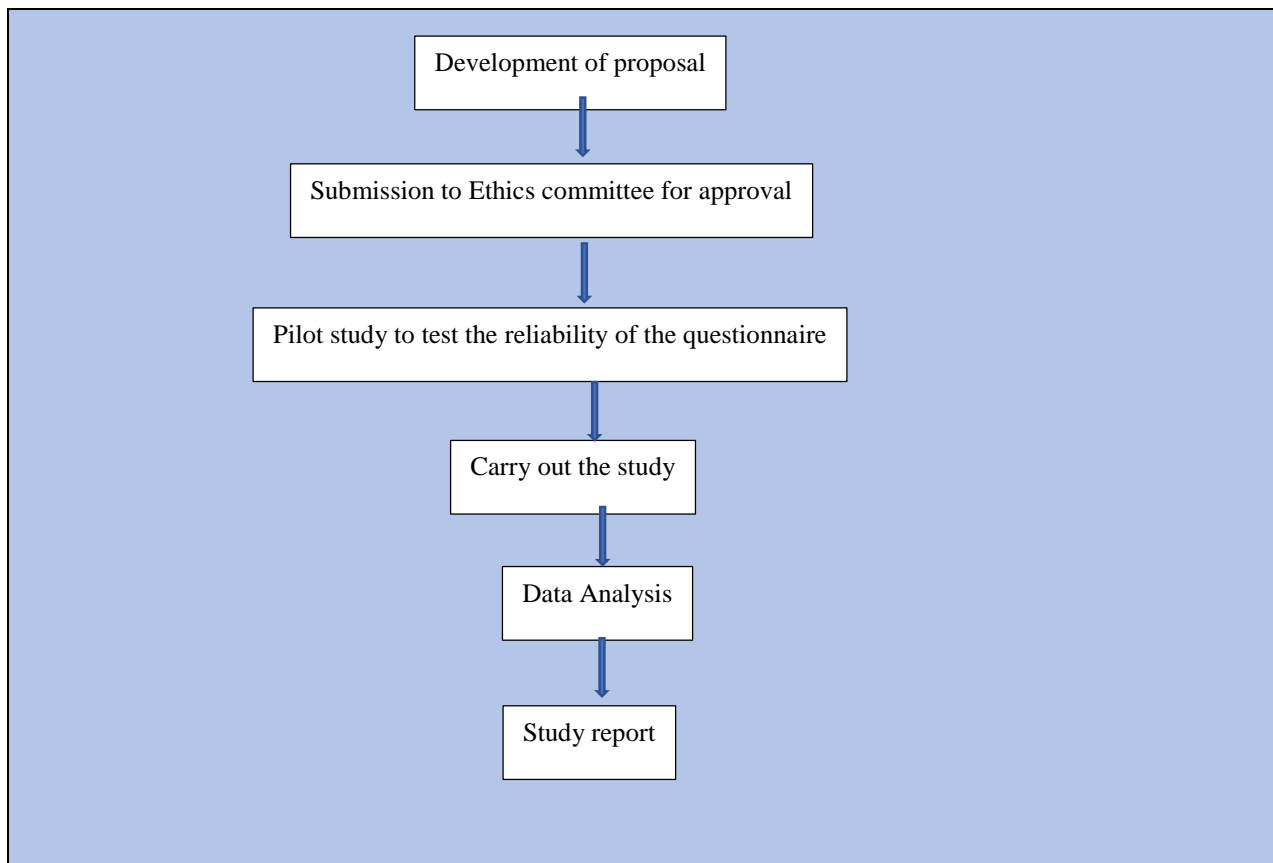
A total number of 300 participants will be selected by using convenience sampling method :

Faculty of Medicine : 200 students, 100 each from year 3 and 4 ; Faculty of Dentistry : 50 each from year 3 and 4 students

### 5.4.4 Research funding and ethical approval

This study had been funded personally by the researchers.

5.4.5. Flow chart of the study



6. Results and Discussion

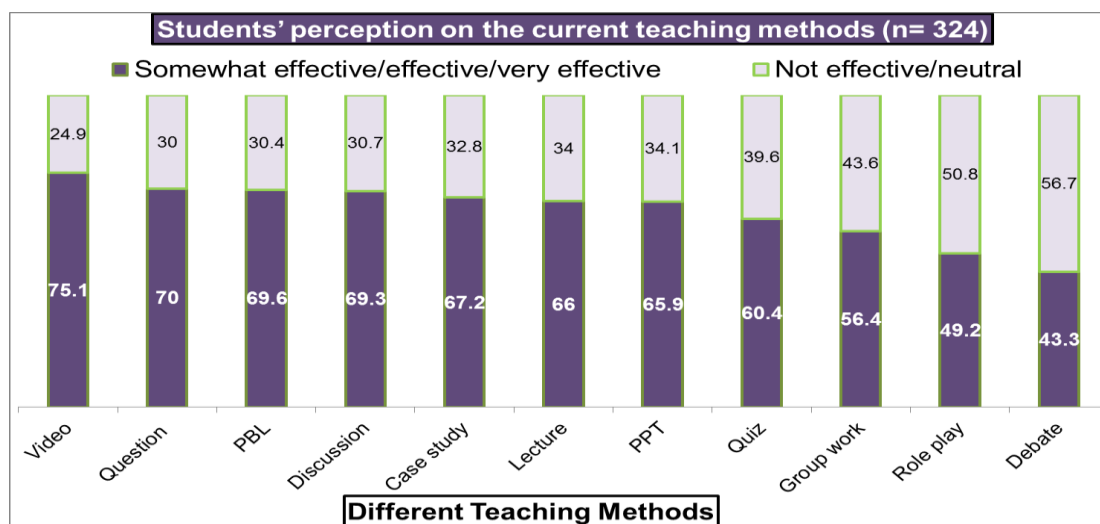


Figure-1: Students' Perception on Different Teaching Methods

The overall results of students' attitude towards effectiveness of current teaching methods were highest in video (75.1%) followed by questions (70%), problem based learning (PBL) (69.6%), discussion (69.3%), case study (67.2%), lecture (66%), power point presentation(PPT) (65.9%), quiz (60.4%), group work (56.4%), role play (49.2%) and debate (43.3%) respectively. (Figure-1)

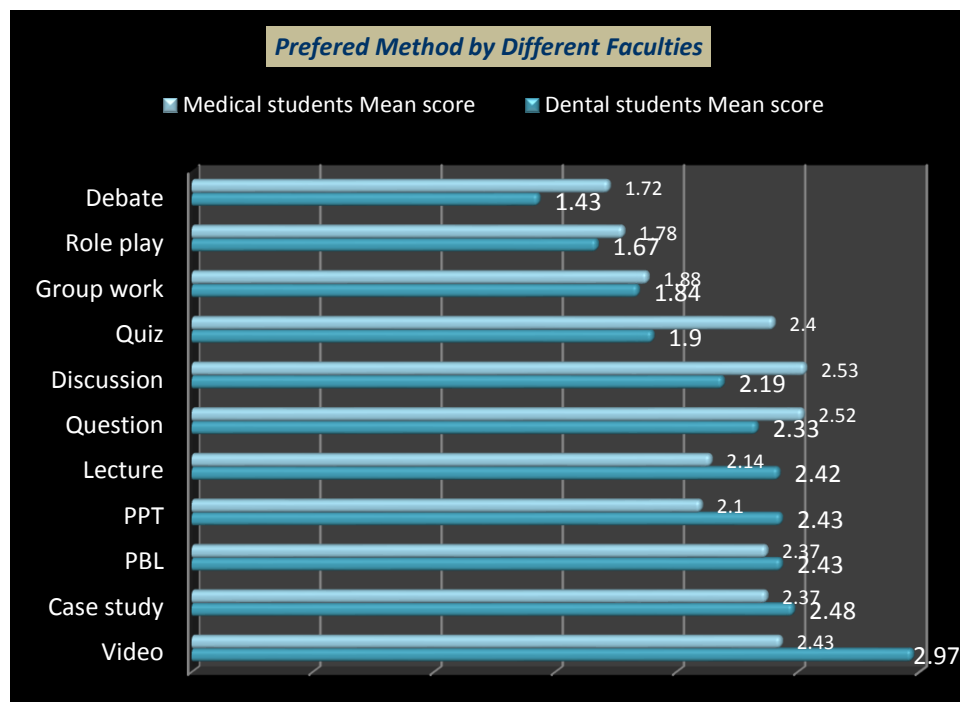


Figure-2: Students' Preferences of Teaching Methods

Among the different methods the dental students had higher mean scores (2.97) in preferences on videos than that of the medical students (2.43) and medical students showed higher mean scores in preferences on discussion(2.53) and question(2.52) than that of dental students.

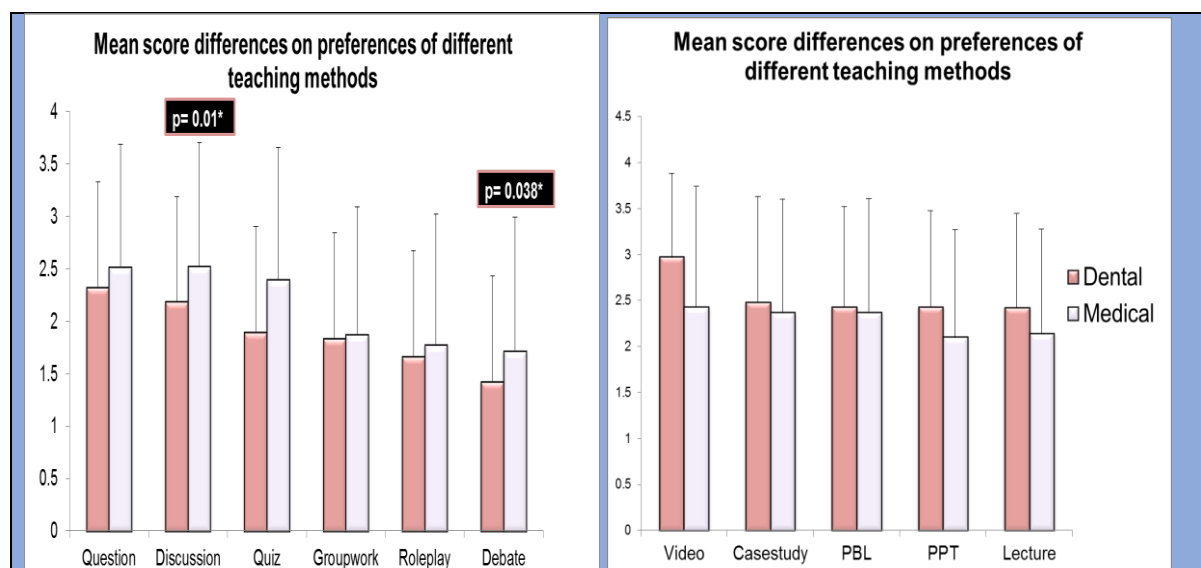
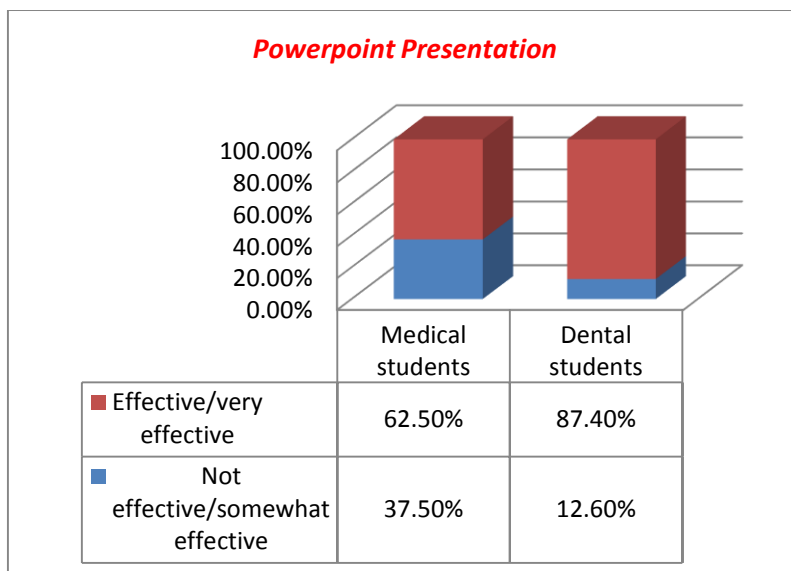


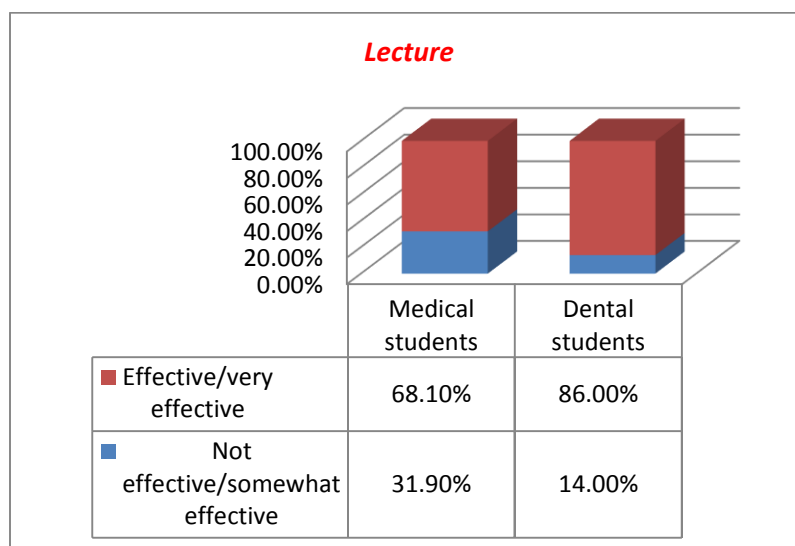
Figure-3: Students' Mean Score Differences on Preferences of Different Teaching Methods

Medical students have higher mean score differences in preferences on discussion (-0.34), quiz(-0.5) and debate(-0.29). Dental students have significantly higher mean score differences in preferences on video (0.54), PPT (0.33) and lecture (0.28). (Figure-3)



**Figure-4: Students' Preferences in PowerPoint Presentation**

Study shows that dental students have the higher priorities on power point presentations (87.40%) and lectures (86%) than that of medical students. (Figure-4 and Figure-5)



**Figure-5: Students' Preferences in Lecture**

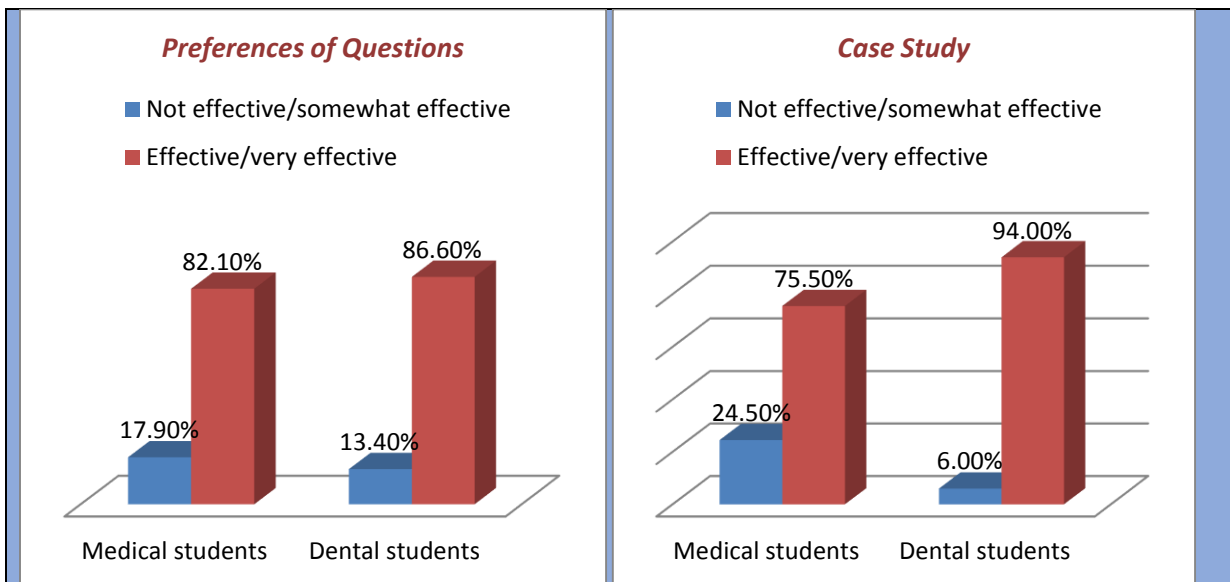


Figure-6 & 7: Students' Preferences in Questions and Case Study

Both the medical (82.01%) and dental (86.06%) students had almost the same preferences in the question method but in case studies medical students showed less priority (75.50%) than dental students (94%). (Figure- 6 & 7)

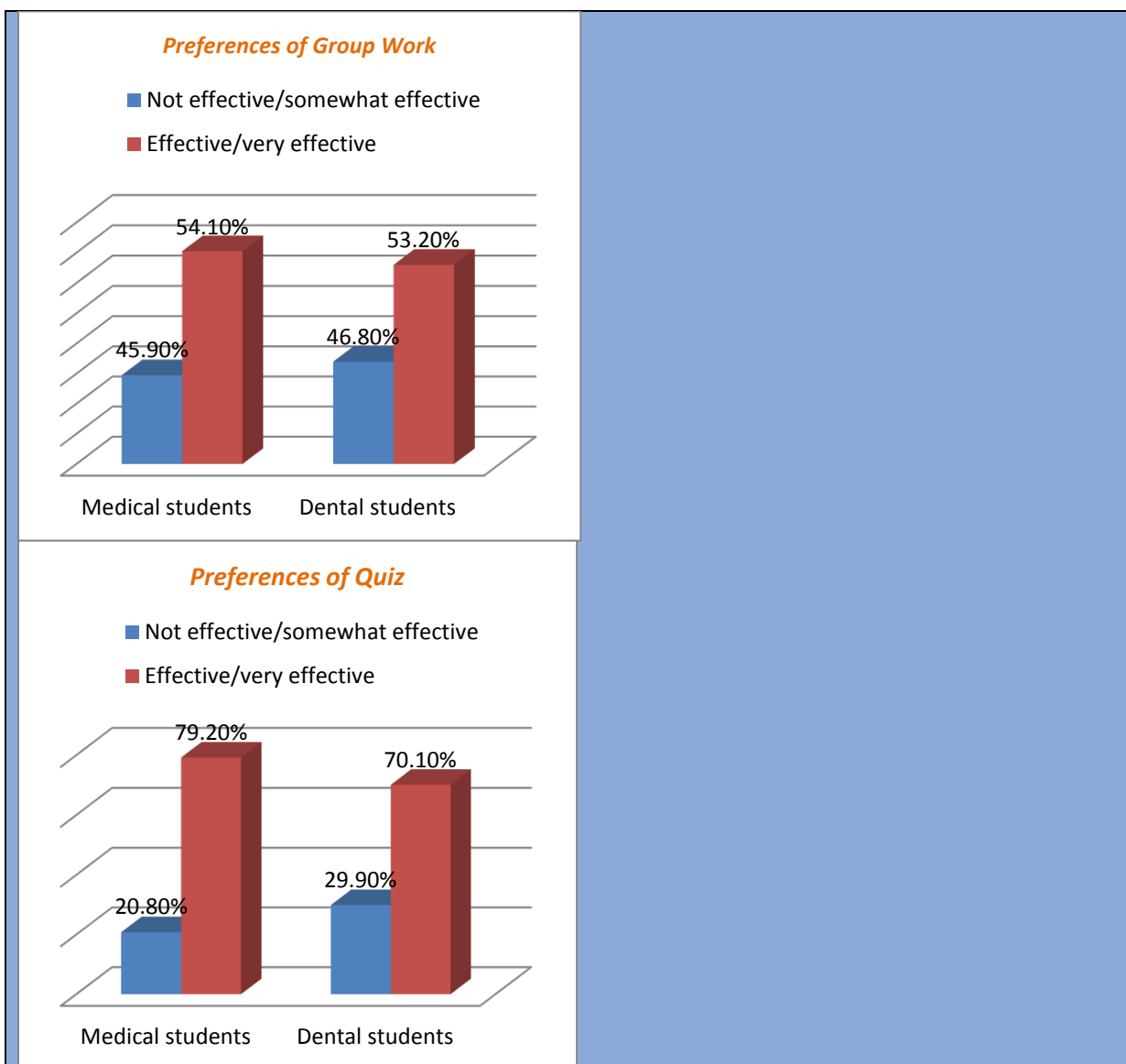


Figure-8 & 9: Students' Preferences in Group Work and Quiz

In group works and quiz method the preferences are almost the same in both medical (54.10%, 79.20%) and dental students (53.20%, 70.10%) respectively. About 45.90% medical students and 46.80% dental students were not satisfied with group work. (Figure-8 & Figure-9).

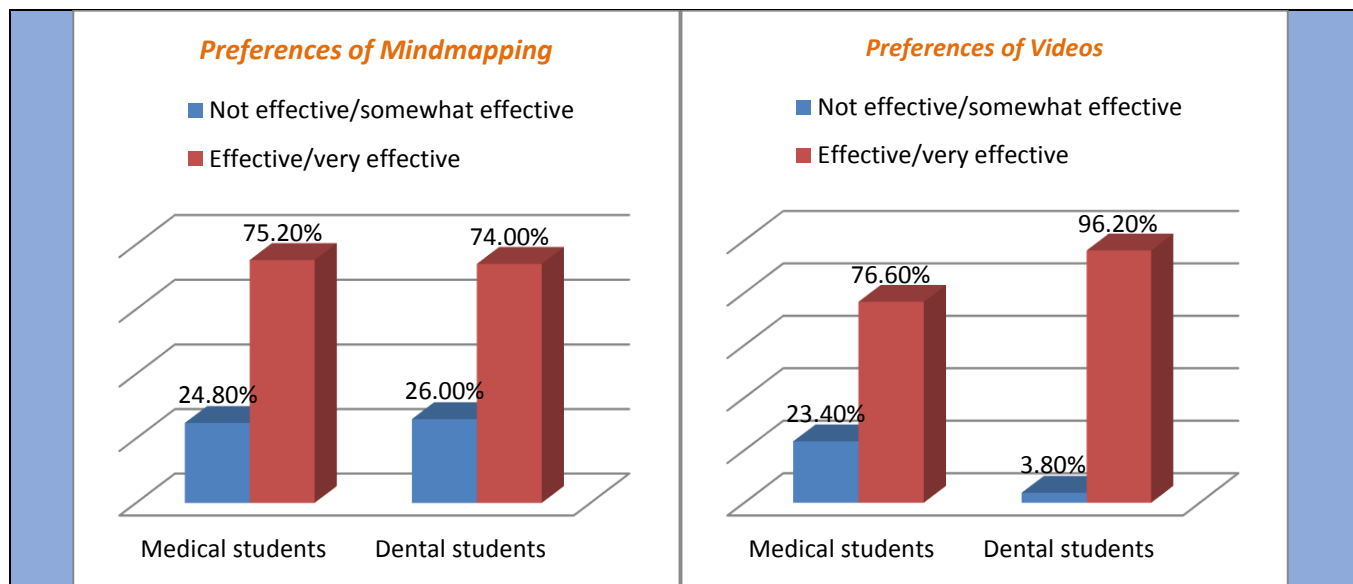


Figure-10 & 11: Students' Preferences in Mind mapping and Video

In-between mind mapping and videos most of the medical (76.60%) and dental students (96.20%) has given priorities to the videos. About 75.20% of medical students and 74% of the dental students showed preferences in mind mapping. (Figure-10 & Figure-11)

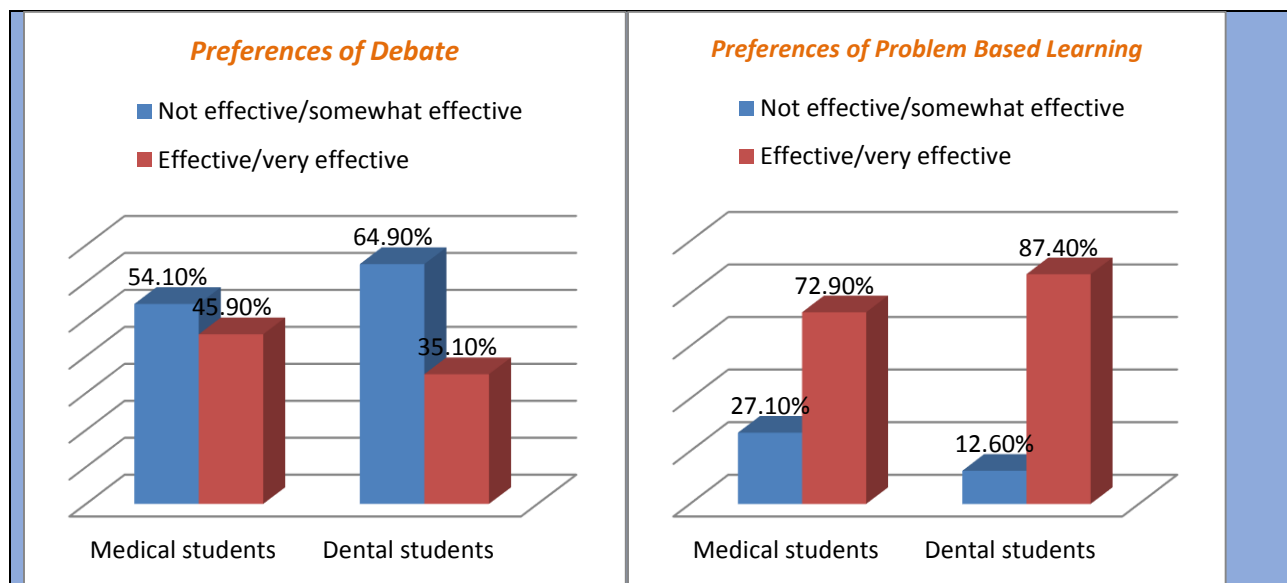


Figure-12 & 13: Students' Preferences in Debate and Problem Based Learning

Study shows most of the medical students (87.40%) and dental students (87.40%) preferred problem based learning (Figure-13). On the other hand they showed less interest in debate (54.10% & 64.90%) respectively. (Figure-12)



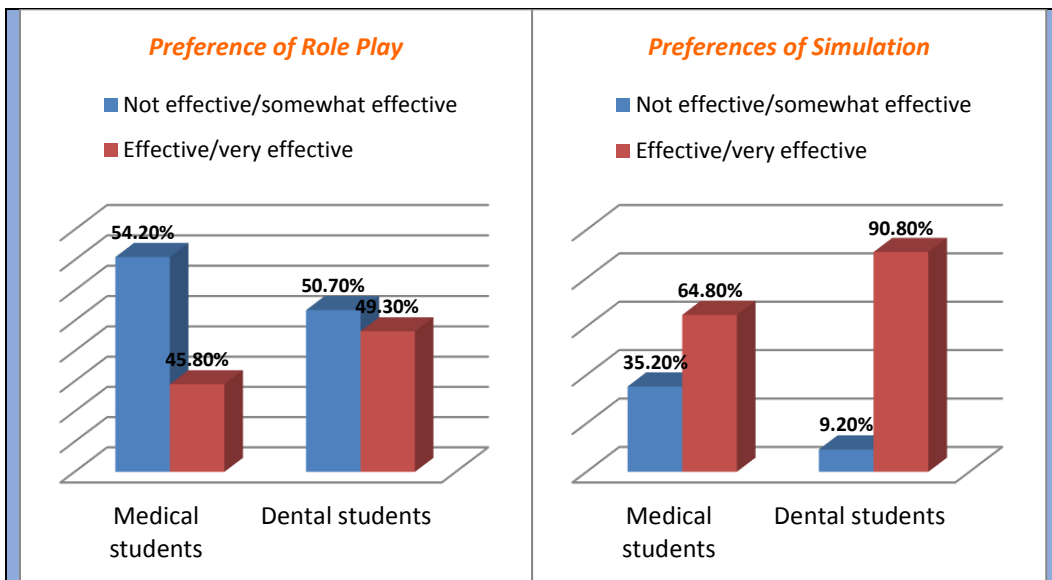


Figure-14 & 15: Students' Preferences in Role Play and Simulation

In this study most of the medical students (54.20%) and dental students (50.70%) were less interested to role play whether 90.80% of medical students and 64.80% of the dental students shows more preferences in simulation. (Figure-14 & 15)

#### Conclusion and Recommendations

Constructive and alternative teaching methods promote students active participation. A blend of teaching styles helps the students acquire in-depth knowledge. The 21st-century teachers are responsible for students with a diverse range of learning abilities. They must apply effective teaching methods focusing on general students as well as slow-learning students and those with attention deficit tendencies.

Laptops and tablets, video conferencing, group discussion, problem solving discussion, case study, e-learning in classrooms play a vital role in today's teaching styles. This is mandatory for the 21<sup>st</sup> century teachers to apply the modern technology and assess their students' knowledge while they are learning.

This study suggests that to shift our teaching strategies from didactic traditional teaching and recommend a combination of other methods like PBL, videos, quiz and discussions to cater the needs of the adult learning and also to make it more interesting, interactive and effective.

The teachers must find out the effective teaching methods that work best for their students. Knowing how to engage the students by trying different teaching methods will help the teachers to find ways to reach each student.

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