

# The Effectiveness Of Student Clinician Communication Skill In Educating The Patients For A Shared Decision-Making

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## ARTICLE HISTORY

## ABSTRACT

Received  
30 September 2017

Received in revised form  
10 December 2017

Accepted  
15 December 2017

Shared decision-making (SDM) is a developing trend in clinical medicine but has by far received little attention in the dental literature. Informative education plays a vital role in SDM by helping patients and clinicians to decide on treatment plan. The objective of the study is to compare patients' improvement of knowledge by different educational approaches; face-to-face educational discussion by student clinicians and non-face-to-face mobile dental applications education (MDAE). Four hundred and fifty participants were segregated into three groups; Group 1: no MDAE or discussion session (n:150), Group 2: discussion session approach (n: 150) and Group 3: MDAE approach (n:150). Quizzes on a mobile dental application (MDA) were used to gauge participants' knowledge and analyzed using chi square test. No significant differences in subjects' baseline knowledge, with 55.0% in Group 1, 52.7% in Group 2 and 60.7% in Group 3. However, following different educational approaches, Group 2 (61.3%) had significant increase in knowledge compared to Group 1 (35.0%) and Group 3 (44.0%). A perception survey reported that more than half of Group 2 and Group 3 gave positive feedbacks to the two educational approaches in improving knowledge for SDM. Face-to-face discussion is still the most effective educational approach in promoting SDM compared to non-face-to-face MDAE. This result highlights the effectiveness of student clinicians' communication skill in educating the patients and improvement required to enhance the usage of MDAE.

**Keywords:** dental Apps; shared-decision making; dental treatment choice; clinician communication skill

## 1. INTRODUCTION

In the field of dentistry, knowledge and technical skills of the clinicians are not the only prerequisite qualities for a good clinical practice. Good communication skills and interaction with patients and colleagues are essential for a successful practice. The ability to communicate effectively with patients, to use active listening skills, to gather and impart information effectively, to handle patient emotions sensitively, and to demonstrate empathy, rapport, ethical awareness, and professionalism are the important keys [1] ensuring a good clinical practice.

Shared decision making (SDM) is a developing trend where the clinicians are able to help patients to understand the significance of their values and preferences in making the best

decisions. Experience has demonstrated that when patients know the options for the best treatment, majority of them will want to participate with their clinicians in making their choices [2-5].

The most common educational approach that has been traditionally practiced for SDM is the face-to-face discussion between clinicians and patients. Therefore, the effectiveness of communication skills in delivering information will be useful in helping patients to understand and be engaged in discussions [6]. Dental schools around the world have realized that communication is a core clinical skill rather than an optional curricular component, and thus, must be an integral part of the undergraduate dental curriculum [1,7]. In Malaysia, the importance of communication skills for dental students is further emphasized with the introduction of a soft skill module by the Ministry of Higher Education (MOHE) in 2006 where proficiency in communication is the top priority among the seven key soft skills [8].

Other educational approach that might be used in the concept of SDM is the none face-to-face method. Hard copy learning instruments were distributed to patients and it was reported that this method was well accepted by patients and health care providers and statistically improved patients' knowledge and involvement in the decision-making process [9-10]. Alternatively, the move towards mobile learning (m-learning) as a none face-to-face method is consequently an emerging concept in teaching and learning environments [11]. The internet is known as a significant source of health information for the general public with more than 70,000 websites providing health information [12]. However, it is best if the information provided to the patients are evidence-based and verified by the health professionals to avoid misguided data.

The main aim of the study was to evaluate the effectiveness of the student clinicians' communication skill during face-to-face discussion in improving the patients' knowledge for a SDM concept. At the same time, a different educational approach which was a non-face-to-face, Mobile Dental Apps Education (MDAE) was introduced and made available to them. Both methods will be compared to determine the most effective means in patients' knowledge acquisition.

## **2. MATERIALS AND METHODS**

This study was a randomized control trial of 600 walk-in patients to the Treatment Clinic, Faculty of Dentistry, Universiti Teknologi MARA (UiTM). Four hundred and fifty (450) participants that fulfilled the inclusion criteria were randomly selected for this study and segregated into three groups (Figure 1); participants did not receive any educational approach through-out the study (Group 1, n:150), participants received discussion approach (Group 2, n: 150) and participants received the Mobile Dental Apps Education (MDAE) (Group 3, n:150). Inclusion criteria was non-dental students aged between 18-25 years old with sufficient understanding of Malay and English (Ethics approval: REC/78/16).

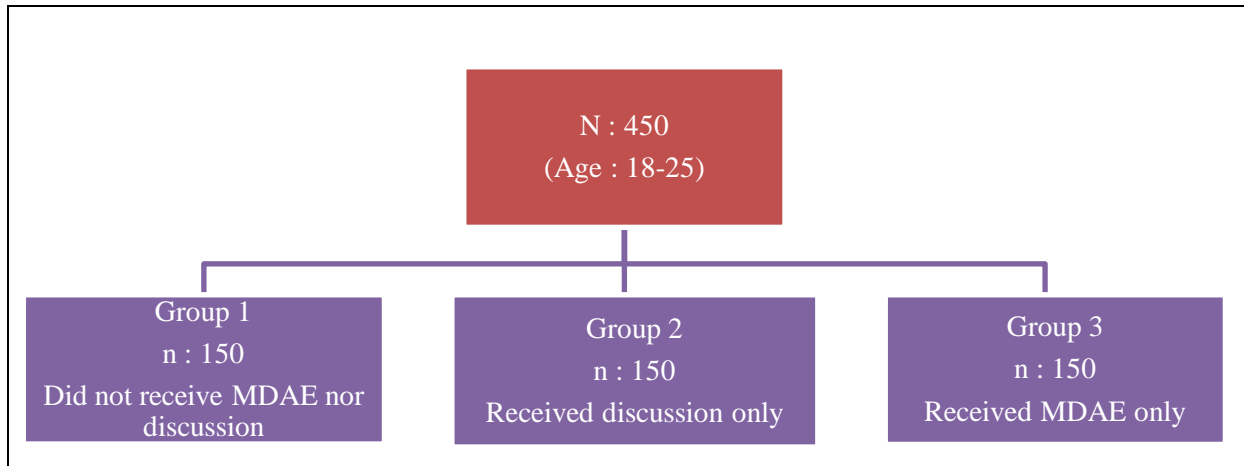


Figure 1: Group segregation for the study

A mobile Apps known as MDAE was developed (ref 600-RIBU IP.5/2/6/3/CP) prior to the study and tested to the public during the Invention, Innovation & Design Exposition 2014 (Figure 2a and 2b). The Apps consist of two sections; educational instruments and two level of quizzes. The educational instruments consist of explanation in text, photograph and video animations of common dental diseases and treatment choices. The two levels of quizzes consist of beginner level and expert level with five questions for each level.

As a baseline establishment, all groups undertook the beginner level quiz before randomly segregated into the designated groups. Group 1 was a control group where participants proceed to expert level quiz without having any educational approach described. Participants answered the expert level quiz based on their existing knowledge on the topic. Group 2 was given face-to-face educational discussion session (conducted by student clinician) that consisted of photograph viewing of common dental diseases and explanation on the different treatment choices. The participants were allowed to ask question during the 15 minutes discussion session. For group 3, instead of having educational discussion session face-to-face with student clinician, participants were using the educational instruments section in the MDAE. Then, all participants undertook the expert level quizzes (Figure 3). The collected data were tabulated and further analyzed using chi square test for comparison between groups. A survey was also conducted on participants from Group 2 and Group 3 after the completion of quizzes on their perception of the two educational instruments that they received.

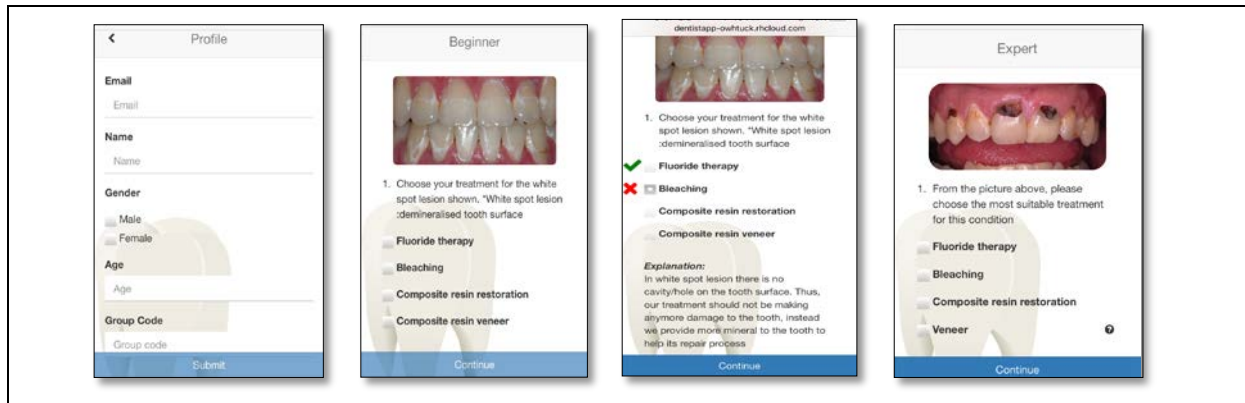


Figure 2a: Mobile dental apps used in this study

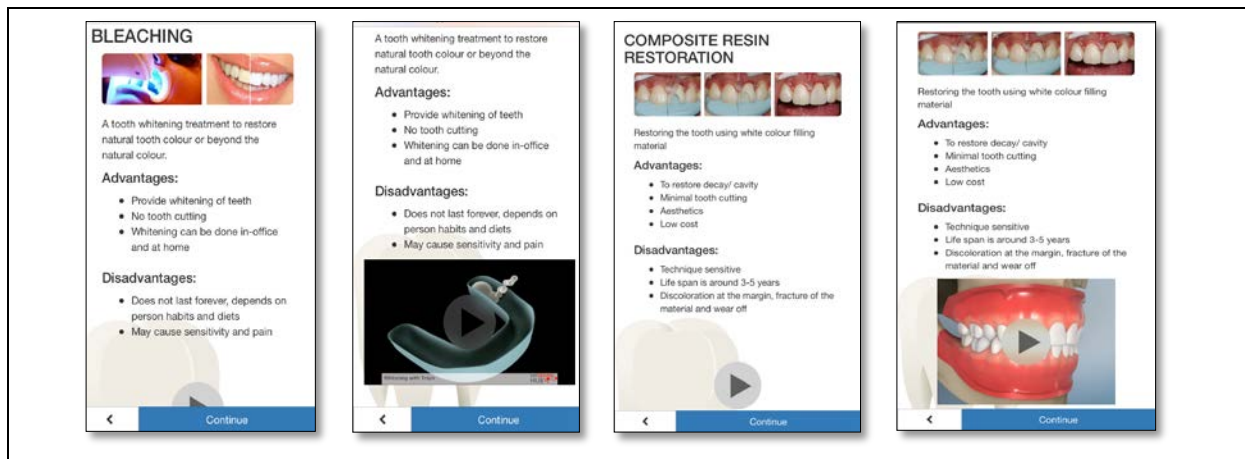


Figure 2b: Educational sections in the MDAE

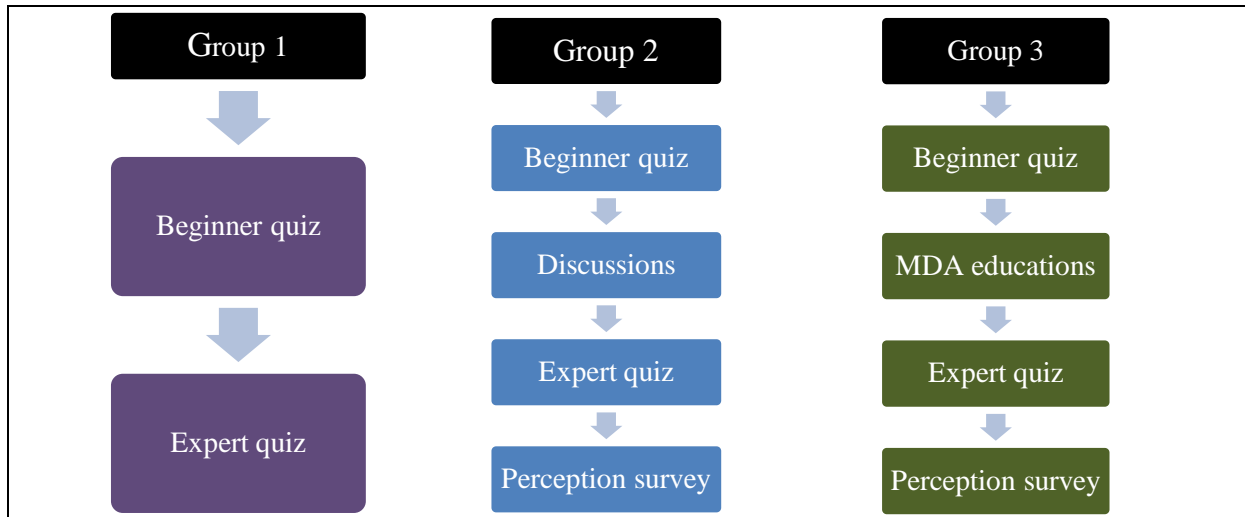


Figure 3: Stages received by each experimental group

### 3. RESULTS

A total of 450 subjects participated in the study. Most subjects were female (64%, n:288) and male subjects were 36% (n: 162). Detail of gender for each segregated group is shown in Figure 4.

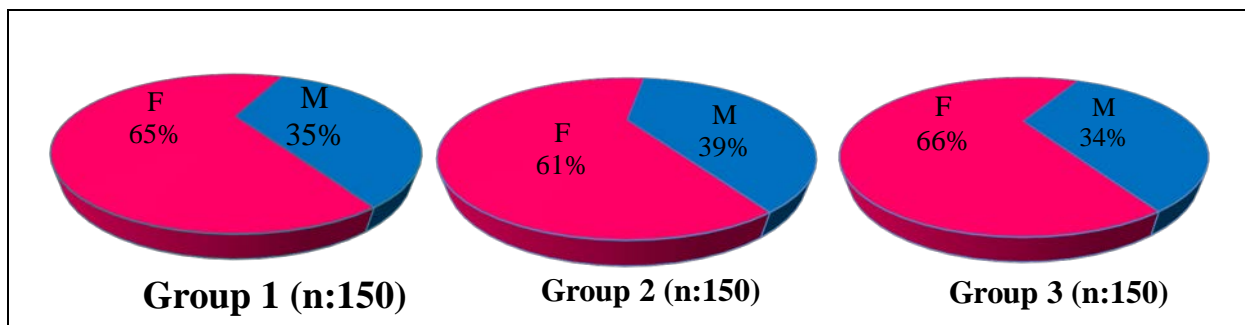


Figure 4: The distribution of gender among the participants (N:450).

From the baseline knowledge assessment (Figure 5), it was found that the percentage of participants who answered >3 correct answers in the beginner level was 55.0% (Group 1), 52.7% (Group 2) and 60.7% (Group 3). These findings suggested that the overall baseline knowledge regarding dental treatment choice of these three groups were mediocre and statistical data analysis showed that there was no significant difference between these 3 groups in terms of their baseline knowledge.

The effectiveness of the different educational approaches used in this study was determined by comparing the participants' performance in the expert level quizzes (Table 1). There was a significant higher percentage of 26.3% who provided correct answers in Group 2 compared to Group 1 (control) in the expert level quizzes. The small increase of 9% in Group 3 compared to Group 1 (control) was found not significant which however indicated that there is an evidence of increased knowledge for Group 3 (Figure 5).

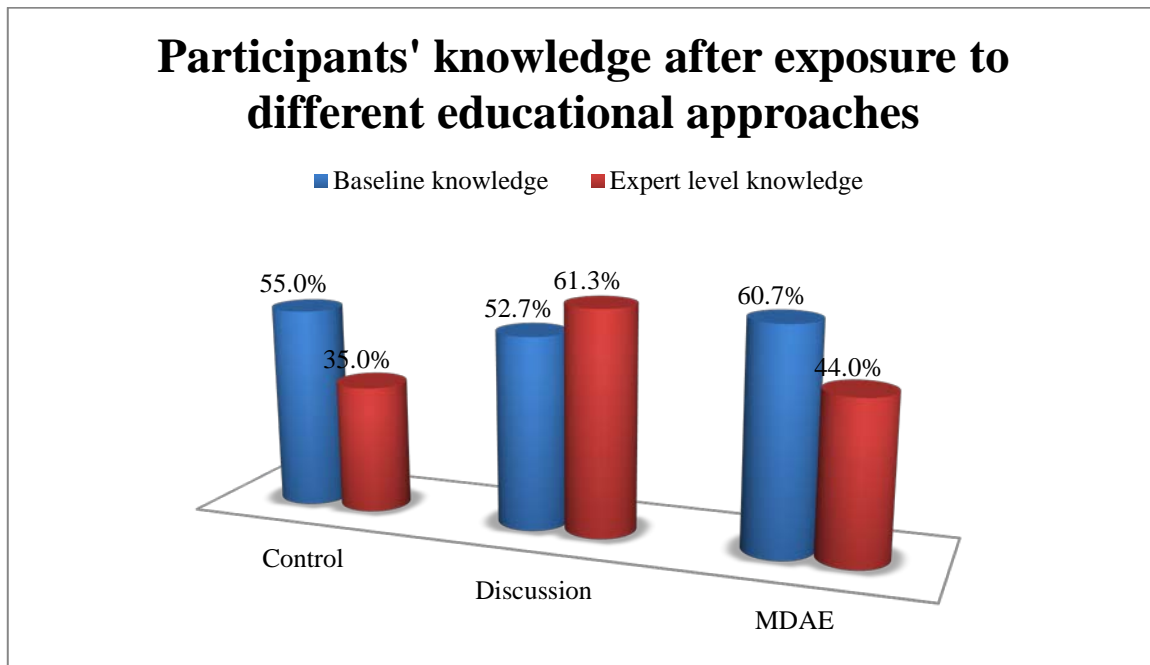


Figure 5: The baseline knowledge and expert level knowledge of the participants (in percentage) after the different educational approaches

Table 1: Total number of students answer expert level correctly out of 5 questions in Group 2 and Group 3.

	No of student's answer $\geq 3$ corrects	No of student's answer $< 2$ corrects	Marginal Totals	Row Totals
<b>Group 2 (Discussion)</b>	58	92	150	
<b>Group 3 (MDAE)</b>	84	66	150	
<b>Marginal Column Totals</b>	142	158	300	

Legend: The chi-square statistic is 9.039. The p-value is 0.002643. This result is significant at  $p < 0.05$ .

Figure 6 summarized the perception survey given to Group 2 (Discussion) and Group 3 (MDAE). More than half of the participants from both groups gave positive feedback regarding the educational approaches subjected to them where 57% (Group 2) and 60% (Group 3) felt that both approaches were useful in making shared decision making between

patients and clinicians. Approximately 58% of Group 2 and 61% out of Group 3 believed that the current approaches adopted in this study improved their knowledge in dental treatment choices and that these 52% (Group 2) and 56% (Group 3) will recommend these approaches to others.

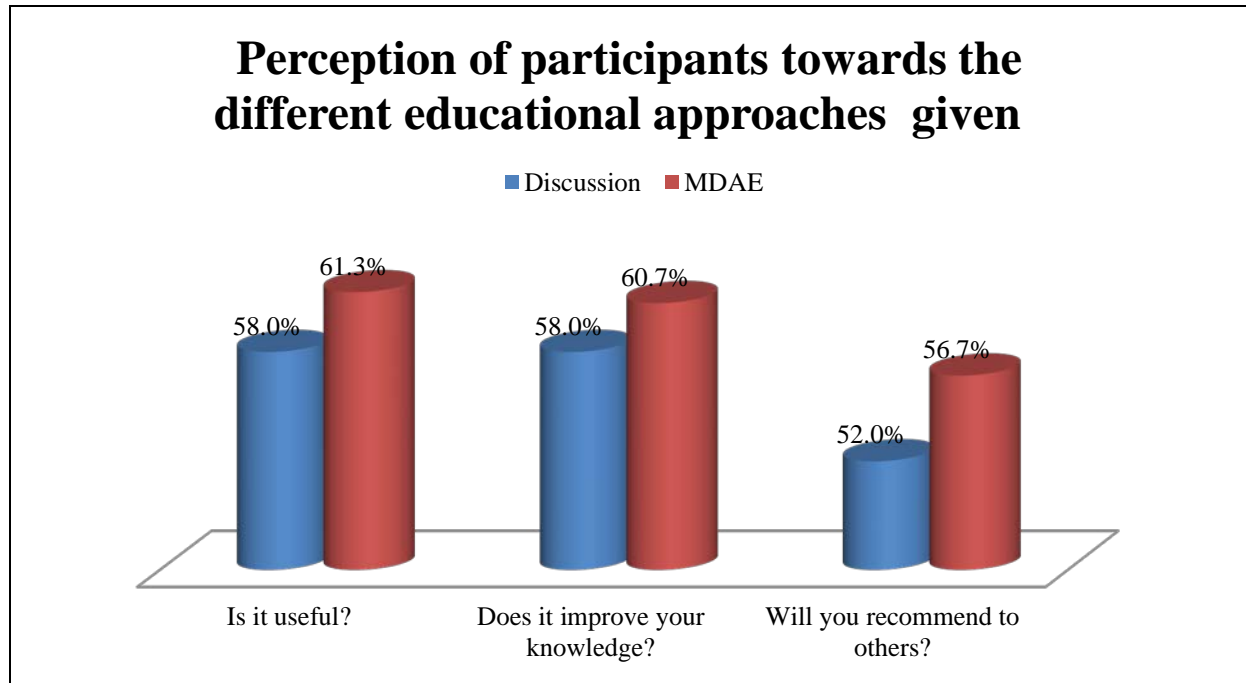


Figure 6: The perception of participants towards the different educational approaches given

#### 4. DISCUSSION

The study focuses on students aged between 18-25 years old (young adult) because they are technologically literate and familiar with digital and electronic mobile devices [13]. This was done to avoid acceptance bias in the use of the newly developed mobile Apps that may differ in other age group.

##### *4.1 Baseline knowledge of participants*

The baseline knowledge of participants in this age group was consistent with other studies conducted among groups of university students from non-dental backgrounds in the early 2000s. It was reported that students had almost similar knowledge on dental diseases, which was between low to moderate level [14-16]. The similar result with current study implied that the oral health education in the school was still lacking and need to be addressed and improved. Non-governmental organizations together with the governmental health sectors should work together for a better oral health education delivery in the national school system.



#### ***4.2 Different educational approach comparison***

Comparisons of knowledge were made among the 3 groups in the expert level quizzes and it was found that both educational approaches had improved participants' knowledge (Group 2 and Group 3) compared to the control group (Group 1). This concluded that knowledge apprehension did occur in both face-to-face learning and MDAE methods as specified in this study [17-18]. However, further comparison between these two educational approaches, Group 2 had a significantly higher percentage of knowledge improvement compared to Group 3; 61.3% and 44.0% respectively (Table 1). In other words, the respondents in this study performed better after being educated by face-to-face educational discussion, contradicting most studies that have been done among students where e-learning education and face-to-face instruction have similar or better attainment outcomes [19-21]. This particular finding in the current study indicates that the student clinicians who gave the face-to-face discussions, did manage to communicate effectively with patients and convey important information, better than the MDAE. Consecutively, future studies have been planned to assess the communication skills not only for the improvement of patients' knowledge which was assessed in this current study, but also on the students' clinician skills such as asking questions, listening and responding to patient concerns, demonstrating empathy, practicing teamwork, and providing respectful and comfortable care for different age group of patients.

#### ***4.3 Perceptions of respondents towards different educational approach***

Limited published work is available regarding educational tools that can be used to provide knowledge to the public in promoting shared decision making in dentistry. Despite the advancement of mobile learning in recent years, evaluation of mobile learning on shared decision making remains an open research issue [22]. The positive feedbacks received in this study suggested that patients were willing to collaborate in planning treatment choices with their dentist, thus more robust and informative educational tool would be beneficial for the near future. The MDAE can potentially be a useful tool to disperse information more widely to the public and at their own pace, compared to discussion method, where the main limitation involves around time consuming and human resources. More clinical consultation time and more health personnel are required to disseminate knowledge in a face-to-face interaction with patients.

### **5. CONCLUSIONS**

This study concluded that the face-to-face discussion was the most effective approach for educating the patients in promoting SDM. This result highlighted the effectiveness of student clinicians in communicating and conveying information with patients in increasing patients' knowledge. However, it was also an insight view that the newly developed MDAE as an e-educational instrument was well received and to be improved in the future with more interactive features to produce a more successful mobile Apps, and to make it comparable to the face-to-face educational discussion.



## ACKNOWLEDGMENT

The authors have a patent by RIBU (Ref number: 600-RIBU IP.5/2/6/3/CP) issued for the Mobile Dental Education Application (MDAE Apps). This study was supported by Academic and Research Assimilation (ARAS) Ref: 600-RMI/DANA 5/3/ARAS (67/2015), Universiti Teknologi MARA.

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