Asia Proceedings of Social Sciences (APSS)
Journal Homepage: http://readersinsight.net/APSS

FACTORS INFLUENCING ATTITUDE TOWARDS AN INNOVATIVE TEACHING AID USING SIMULATOR KIT

Siti Noorsuriani Maon*

Department of International Business and Management Studies
Universiti Teknologi MARA, Puncak Alam Campus
Malaysia
sitinoor123@uitm.edu.my

Naffisah Mohd Hassan

Department of International Business and Management Studies
Universiti Teknologi MARA, Puncak Alam Campus
Malaysia
naffi885@uitm.edu.my

Tengku Intan Baizura Tengku Jamaluddin

Centre of Oral and Maxillofacial Surgery Studies, Faculty of Dentistry,
Universiti Teknologi MARA (UiTM) Selangor
Malaysia
intanbaizura3124@uitm.edu.my

***Corresponding Author email: sitinoor123@uitm.edu.my**

Submission: 12 December 2020 Revised: 09 February 2021 Accepted: 08 March 2021

Peer-review under responsibility of 6th Asia International Conference 2020 (Online) Scientific Committee
http://connectingasia.org/scientific-committee/

https://doi.org/10.31580/apss.v7i2.1788

ABSTRACT

Globally, local anaesthesia is a vital skill and part of the undergraduate dental curriculum. The inferior alveolar nerve block (IANB) is the most frequent regional anaesthesia techniques employed in dental procedures. However, this technique has been reported to have high rates of failure among dental undergraduates and interns. The Local Anaesthetic Simulator Kit (LASK) has therefore been developed. The main objective of this study is thus to examine factors concerning the diffusion of innovation attributes on students' attitudes towards innovative teaching aids using simulator kit. A cross-sectional survey was performed using a questionnaire, and distributed to dental undergraduates. The items of survey question have been adapted from previous studies. A total of 150 data were valid for data analysis. Respondents were Year 1 and 3 dental students, involving 80% female and 30% male. The study findings reported that the attributes including relative advantage, complexity, compatibility, observability and trialability significantly influence attitudes of students towards the new teaching aid for local anaesthetics. However, there is no statistically significant relationship between complexity and the outcome variable. This empirical study may contribute greatly to the formal instructional significance of dental undergraduates, particularly in the clinical competence assessment at a more microscopic level.

Keywords: *Attitudes, Innovative Teaching Aids, Simulator Kit, Local Anaesthetics*

RESEARCH HIGHLIGHTS

1. Generally, the study findings revealed that nearly all constructs of Roger's Diffusion of Innovation theory; including relative advantage, compatibility, observability and trialability were significantly predicted the attitude of students towards the intention to use the new teaching aid called LASK in administering the inferior alveolar nerve block (IANB). However, complexity constructs i.e. ease of use attribute was found no significantly predict the students' attitudes towards the intention to use the LASK.
2. Relative advantage appeared as the most significant potential predictor to the attitudes of students towards the intention to use the new teaching aid – LASK. It followed by the observability, then compatibility and finally trialability attribute that exerts as the least significantly influence the attitude of students towards the intention to use the LASK.
3. The study findings may contribute to the enhancement of the LASK in becoming an effective teaching aid to master one of the essential clinical skills.

Research Objectives

IANB is one of the most common local anaesthesia techniques. However, this technique has a high rate of failure among dental undergraduates and interns. It is, therefore, crucial to provide adequate practical training primarily in order to minimise errors. Dental undergraduate students need to ensure that they learn this local anaesthesia management skills before delivering treatment to patients in their clinical years. There are various teaching methods that are available in local anaesthesia; through skull mannequins (bone) or dental models. One of them, which continues to be commonly used in dental schools worldwide, is student-to-student local anaesthesia administration. Thus,

in response to this issue, an innovative local anaesthesia simulator kit (LASK) as new andragogy in pre-clinical training in performing an IANB has been developed. The prototype of LASK was found able to provide real-time data feedback and display the results on the user interface. Furthermore, it is important to have input from respondents that could be obtained prior to real-life administration of IANB to patients is available via training on the LASK. Therefore, this research study is mainly to examine the factors contributing to student's attitudes of intention to use LASK in IANB administration using Roger's innovation theory.

Methodology

This study was carried out at the Faculty of Dentistry, Universiti Teknologi MARA; with the study population of undergraduates dental students who enrolled in Semester 2/2019. Ethical approval was received from the Research Ethics Committee of the University (REC/182/19). Data collection of this study using a 46-item survey question. The survey question was divided into three sections. Three closed-ended items investigating demographic characteristics of participants in Section A; Section B comprised 36 of 5-point Likert scale statements; in which ranging from 1 (strong disagree) to 5 (strong agree) concerning to the influence of five constructs of diffusion of innovation theory towards the dental undergraduates' intention to use LASK; that assessed by nine items. Both descriptive and inference statistics were performed using the statistical software (IBM SPSS Statistics software). Cronbach's alpha coefficient was used to confirm the reliability of the internal consistency of items. Both skewness and kurtosis values were used to confirm the normality of data distribution. Multiple regression was carried out to examine whether the constructs of diffusion Roger's theory predicting attitudes towards intention to use a new teaching aid among students.

Results

In total, 150 data were valid for data analysis; including 55% of Year 1 students (n=83) and 44.7% of Year 3 students (n=67). The majority of respondents were female (n=120; 80%) and only 20% male respondents (n=30). Nearly 95% participants were from the age group between 18 to 22 years old (n=71). Only 5.3% (n=12) were between 23 to 25 years old. The regression analysis was conducted in inferential statistics. Using the enter method, it was found that the model is significant ($F=68.782$, $p<0.001$). The adjusted R^2 of 0.695 indicates that 69.5% % of the variance in the obtained data. The beta weights, suggest that the relative advantage (Beta = 0.304, $t(149)=4.505$, $p<0.01$), compatibility (Beta = 0.279, $t(149)=3.676$ $p<0.01$), observability (Beta = 0.271, $t(149)=4.387$ $p<0.01$) and trialability (Beta = 0.124, $t(149)=2.088$. $P=0.39$) significantly predicts the outcome variable. However, the complexity has statistically no significant relationship with the outcome variable (Beta = 0.023, t (149) $=0.456$, $p=0.649$).

Findings

The study results found that the adjusted R^2 of 0.695 indicates that 69.5% % of the variance in the attitudes towards LASK was explained by the model. This value is considered a large

effect (Cohen, 1988). The F-test was found highly significant, thus it can be assumed that the regression model explains a significant amount of the variance in attitudes towards intention to use of LASK. All constructs of DoI Roger's theory; except complexity construct, were significantly predicted the attitudes of students towards LASK. The relative advantage construct was reported the highest impact among other factors; by comparing the standardised coefficients.

Acknowledgement

This research was supported by Universiti Teknologi MARA via MITRA Perdana Grant: 600-IRMI/PERDANA 5/3/MITRA (002/2018)-2. We would like to express our sincere gratitude to Universiti Teknologi MARA, (UiTM) Cawangan Selangor and the Faculty of Business and Management, Universiti Teknologi MARA (UiTM) Kampus Puncak Alam, for their kind support and contributions.

References

Cohen, J. (1988). Statistical power analysis for the behavioral sciences, 2nd ed. Hillsdale, NJ: Erlbaum.

Author's Biography

Siti Noorsuriani Maon *is an associate professor at Faculty of Business and Management, Universiti Teknologi MARA (UiTM), Malaysia. She received her PhD from University of Queensland (UQ), Australia in 2013Her research interest includes management, health behavior, health informatics and technological intervention in health improvement.*

Naffisah Mohd Hassan *is a senior lecture at Faculty of Business and Management, Universiti Teknologi MARA (UiTM), Malaysia. She received her PhD from University of Wollonggong, Australia. She has published papers in various journals and conference proceedings. She is an active member of community engagement projects with NGOs. She has organized a number of community projects to raise awareness, understanding and acceptance of autism within Muslim communities.*

Tengku Dr Intan Baizura Tengku Jamaluddin *has seventeen years in the dental fraternity providing oral and maxillofacial surgery services at hospitals in Ministry of Health, Malaysia and at Universiti Teknologi MARA (UiTM). Experienced in treating patients with cleft, craniofacial anomalies, pathological and post-trauma disabilities. An active member of community engagement projects with NGOs and international parties. Aspires to act with a multidisciplinary research team to reach research endpoints that can be translated into education policy for the empowerment of marginalised communities.*