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Perceptions of clinical year medical students on online learning environments during the COVID-19 pandemic

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Abstract

Introduction: During the era of COVID-19 pandemic, online learning has become more prevalent as it was the most available option for higher education training which has been a challenging experience for the students and the lecturers especially in the medical and health sciences training. The study was conducted to determine the perceptions of clinical year medical students on online learning environments during the COVID-19 pandemic.

Methods: A cross sectional study was conducted to clinical year medical students at University Tunku Abdul Rahman. The validated Online Learning Environment Survey (OLES) was used as a tool to conduct the study.

Results: Total 84 clinical year students participated in the study. Among four domains of OLES questionnaire, the domain; “Support of online learning” had the highest mean perception scores, 4.15 (0.55), followed by “Usability of online learning tools” 3.89 (0.82), and “Quality of Learning; 3.80 (0.68) and the domain “Enjoyment” was the lowest mean perception scores 3.48 (1.08). Most of the students (52.4%) rated the overall satisfaction of online teaching experiences “Very good” while (13.1) % rated “Excellent”.

Conclusion: In conclusion, the perceptions of clinical year medical students on online learning environments during the COVID-19 pandemic were satisfactory although there were challenging online learning experiences during the pandemic. It was recommended to include qualitative method in future studies to provide more useful in-depth information regarding online learning environment.

Keywords: *Online Learning Environment, Perceptions, Medical Students, Malaysia, COVID-19*

I. INTRODUCTION

Online learning is defined as learning via web-based technology and students interact with their peers and educators through web-based communication tools (Bonk & Reynolds, 1997). The usability of the web-based learning system is important as are its applications such as interactive video, forums, chat rooms, email, and document sharing systems (Klein et al., 2006).

Online learning is regarded nowadays as a new way of interaction in the educational process and online learning facilities offer various opportunities to get new knowledge and develop students’ skills through

engagement and interaction in new learning environments. (Samoylenko et al., 2022)

Due to the novel coronavirus pandemic, all the higher education training has converted to online teaching and assessments including medical programs. To fulfil the student physical learning time requirement, the academic year of MBBS clinical year programmes (Year 3 to Year 5) has been divided into Phase 1; purely online teaching as medical students were not allowed to be posted to hospitals followed by Phase 2; face to face physical clinical training at the hospital. Phase 1 teaching for clinical years include, online task-based learning, online lectures and online case-based discussion, online clinical

skill, and procedures. This research study was conducted to evaluate the online learning environment of clinical year students and to find out differences in students' perceptions between the academic years.

II. METHODS

A cross sectional study was conducted to (total=135) Year 3 to Year 5 clinical year medical students. 43 students were in Year 3, 49 students were in Year 4 and 43 students were in Year 5 at University Tunku Abdul Rahman (UTAR), Selangor, Malaysia. All the clinical year students were invited to participate in the study by sending electronic invitations emails, informed consent was taken. Data was collected via google form and the information was anonymised.

A validated Online Learning Environment Survey (OLES) (Pearson & Trinidad, 2005) was used to evaluate the online learning environment of medical students of UTAR during Phase 1 of purely online teaching. The questionnaire consists of two sessions. Section (I) general demographic information, Section (II) contains 50 items of OLES questionnaires developed by Pearson and Trinidad (2005). The validity of the tool was recorded as Cronbach's Alpha Coefficient value of 0.79 to 0.90. The OLES consists of nine scales: Computer Usage (CU); Teacher Support (TS); Student Interaction & Collaboration (SIC); Personal Relevance (PR); Authentic Learning (AL); Student Autonomy (SA); Equity (EQ); Enjoyment (EN); and A-synchronicity (AS) which can further classified into four domains: (1) Support for learning; (2) Quality of learning; (3) Usability of online learning tools; and (4) Enjoyment. Responses were recorded against a five-point scale with

the following representations: 1- Never; 2- Seldom; 3- Sometimes; 4- Often; and 5- Almost Always. (Pearson & Trinidad, 2005)

Data were analysed by using SPSS (Statistical Package for Social Science) for Windows, version 26.0. The categorical variables were described by frequency and percentage. Student t-test and Analysis of variance (Anova) test was used to compare means between the groups of different academic years. Ethical approval was acquired from the Scientific Ethical Review Committee of the UTAR.

III. RESULTS

A total of 84 clinical year medical students participated from Year 3 to Year 5. There were 27 out of 43 Year 3 students (62.79%), 26 out of 49 Year 4 students (53.06%), 31 out of 43 Year 5 students (72.09%) who completed the questionnaire. Approximately 82 (97.6%) students were aged between 21 to 25 years and (63.1%) were female students.

The online learning environment survey (OLES) tool consists of four domains to evaluate student online learning environments such as "Support of Online learning", "Usability of online learning tools", "Quality of Learning" and "Enjoyment". Among four domains of OLES tool, the domain; "Support of online learning" had the highest mean perception scores 4.15 (0.55), followed by "Usability of online learning tools" 3.89 (0.82), and "Quality of Learning; 3.80 (0.68) and the domain "Enjoyment" was the lowest mean perception scores 3.48 (1.08).

Domains of perceptions of online learning environment	Subscales of perceptions of online learning environment	Mean (SD)	Mean (SD)
Support for learning	Computer Usage	4.24 (0.64)	4.15 (0.55)
	Teacher Support	4.09 (0.78)	
	Student Interaction and Collaboration	4.02 (0.78)	
	Equity	4.25 (0.82)	
Quality of learning	Personal Relevance	3.60 (0.87)	3.80 (0.68)
	Authentic Learning	3.66 (0.82)	
	Student Autonomy	4.16 (0.76)	
Usability of online learning tools	A-synchronicity	3.89 (0.81)	3.89 (0.82)
Enjoyment	Enjoyment	3.48 (1.08)	3.48 (1.08)

Table 1: The mean perception scores of domains and subscales of online learning environment

Regarding the relation between academic year and student perception on different domains of the online environment, Year 5 students 3.89 (1.01) enjoyed the

online learning as compared to Year 3 3.25(0.95) and Year 4 students 3.22 (1.18) respectively and the difference was statistically significant ($P < 0.027$). Year 4

students perceived more positive on domains support of learning (P=0.658) and quality of learning (P=.396) and Year 5 students perceived online learning tools were useful (P=0.681).

The students were asked to rate their online learning experience via 5 points scale, poor to excellent and (52.4%) of the students found online learning experiences very good followed by (29.4%) good and (13.4%) rated excellent. The data for this research can be accessed at

<http://doi.org/10.6084/m9.figshare.19322297>

IV. DISCUSSION

During COVID-19 pandemic era, medical clinical teaching via online was a challenging experience for both clinical lecturers and clinical year students and this study was to determine the perceptions of clinical year medical students on online learning environments during the COVID-19 pandemic.

A. Evaluating Online Learning Environment

In the literature, there were quite several tools which have been developed to specifically evaluate online learning environments such as Constructivist On-Line Learning Environment Survey (COLLES), Web-Based Learning Environment Inventory (WEBLEI), Technology-Rich Outcomes-Focused Learning Environment Inventory (TROFLEI), and Online Learning Environment Survey (OLES). The OLES instruments have been used to evaluate the university's online learning environment and found to be a useful tool to evaluate online learning environments as the questionnaires were applicable to our local setting of online teaching. The OLES tool consists of four domains to evaluate student online learning environments such as Support of Online learning, Usability of online learning tools, Quality of Learning and Enjoyment. (Chew, 2015) The scores on scales which received specific attention for online educators to monitor the online learning environment provided for students.

1) *Support of online learning*: This domain includes four sub scales and it is the most important part for the students to be able to cope with the online learning environment. Regarding support for computer usage, the findings indicate the students received good support from the university regarding online learning such as the providing internet package for students, laptops, online learning tools and platforms such as Microsoft team. The support from lecturers and peers were also important in regarding clinical case discussion and group works. But in some cases, the students need to go and use internet at their relative's house. On the "Lecturer Support Scale"

and "Equity scale", that the students got support and equivalent chances to contribute in class discussion. (Chew, 2015)

2) *Usability of online learning tools*: This domain includes asynchronicity subscale. Asynchronicity allows students to learn on their own schedule, within a certain timeframe. In this study, there were high mean scores for the "Asynchronicity" scale which indicates that the students found it easier to communicate online. But the result was contrary to a study by Chew (2015), found out that the students found it challenging to communicate online depends on the availability of internet and usage of social media.

3) *Quality of learning*: This domain includes three subscales: Personal Relevance, Student Autonomy, and Authenticity learning. The findings indicate that the students were able to manage and play significant roles in their learning in the online learning climates.

4) *Enjoyment*: The Enjoyment scale was used to evaluate the extent of enjoyment of learning in an online learning environment. Among all four domains, the enjoyment was the least mean perception score which indicated that although the students received support from university and lecturers, they enjoyed less with the online classes as the classes were entirely online. The result was similar to a study by Chew (2015), stated that the students had limited enjoyment in online learning environments due to lack of motivation and technical problems.

B. Limitations of the study

The study was conducted in a private medical university and quantitative approach. A mixed methods approach with larger sample was recommended for future investigations. Validation of the survey recommends carrying out for local setting.

C. Implication of the study

The present study evaluates the online learning environment experienced by clinical year medical students which found to be useful by giving them different learning opportunities and this can be used to implicate future clinical teaching as hybrid mode to create an effective and safe learning environment. The information from this study about the students' perceptions on online learning, provided significant implications in the field such as implementation of hybrid learning, telemedicine in medical curriculum.

V. CONCLUSION

In conclusion, the perceptions of clinical year medical students on online learning environments during the COVID-19 pandemic were satisfactory although there were challenging online learning experience during the pandemic. It was recommended to include qualitative method in future studies to provide more useful in-depth information regarding online learning environment.

Notes on Contributors

Dr Kye is the corresponding author for this paper. She designed the study, analysed the data, prepared the manuscript working together with the co-author.

Dr Amit Bhardwaj made substantial contributions to the design, editing and preparation of the final manuscript.

Ethical Approval

The research study was approved by Universiti Tunku Abdul Rahman Scientific and Ethical Review committee on 20th July 2020 (Approval number: U/SERC/92/2020).

Data Availability

The data that support the findings of the study are openly available at

<http://doi.org/10.6084/m9.figshare.19322297>

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Declaration of Interest

The authors declare that there are no conflicts of interest, including financial, consultant, institutional and other relationships.

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