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A Qualitative Approach on Impacts of Online Learning Towards University of Cyberjaya Clinical Years Medical Students

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ABSTRACT

The recent COVID-19 pandemic has taken a toll and impacted most sectors, including the academic field. With this sudden shift away from the classroom in many parts of the globe, some are wondering whether the adoption of online learning will continue to persist post-pandemic, and how such a shift would impact the worldwide education market. Most countries have shifted to online learning in adaptation to the new normal. In this study, we aimed to study perceptions towards the impact of online learning on University of Cyberjaya (UoC) clinical year medical students through a comprehensive interview. A total of 23 participants had joined this study including 13 students with a focus group of another five students, four clinical years lecturers, and an IT staff in UoC. As various people may have different perceptions, a focus group was organised so that students could discuss their experiences in greater depth. The information was gathered through in-depth semi-structured questionnaire interviews done via Microsoft Teams. The results were arranged based on topics that were covered, including interactions between lecturers and students during online courses, students' experiences impacting the effectiveness of online learning, impediments to online learning, and effective approaches to improve online learning. There were 32 codes and 16 themes altogether. Through this study, we conclude that online learning is still beneficial but has limitations due to various factors. Therefore, more efforts still need to be made to improve the quality of online learning, especially for clinical years students.

Keywords: *COVID-19, Online learning, Clinical years, Education, Medical*

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INTRODUCTION

One of the newest trends in Malaysia nowadays is online education, as it was not used widely before the COVID-19 pandemic occurred especially among primary and secondary schools. Based on Harasim (1989), a novel method of education blends online learning with in-person instruction via computer-mediated communication (1). It is also suggested that it has a few unique characteristics, including: (a) it offers various learning experiences due to the variety of learners; (b) communication is done through devices; (c) various ways for students to participate in class; (d) altered social interactions in the learning environment; and (e) minimised discrimination and prejudice (2).

A thorough systematic review of both online and offline learning has been conducted. For health professional learners, 76 publications comparing internet versus non-internet based interventions and 130 articles with no intervention controls were chosen (3). The study discovered that internet-based interventions had positive benefits in contrast to no interventions; however, these effects and statistical heterogeneities were frequently minor when compared to offline training. Another systematic review comparing various offline and online learning formats found that training licensed healthcare professionals online could be just as successful as offline (4). However, the overall results did not differentiate between offline and online learning.

Teacher-student interaction plays an important role in online learning. Some researchers indicated that teacher-student interaction would affect students' learning attitudes and tutors' attitudes toward online tutoring. Therefore, communication between educators and students must be a top priority to achieve the desired target (5). Effective communication occurs when a desired effect is achieved by the exchange of information, which is communicated by different individuals. Certain objectives such as to educate, to make changes, to clarify something, or to convey ideas must require effective interactions. It mainly consisted of the ability to convey information and to listen (6).

Another challenge is online learning requires learners to adapt to a new learning environment and learning styles thus it might be challenging for certain students (7-8). In self-directed learning, students are fully liable for understanding what they require for their particular learning styles, setting learning goals, implementing learning strategies, and evaluating their progress (9). Since online learning has provided a flexible schedule for students, those who are self-directed are more likely to achieve excellent outcomes. Learners with higher communication self-efficacy were reported to have better performance than others (10-11).. Furthermore, the extent of learners' authority over their learning experience depends on their capability to independently guid themselves. Once the learners have gotten control of the learning content, they will have better performance (12-14).

Online listening or observing is a multiplex phenomenon and a massive element of learners' participation in online dialogue. A group of researchers in their study of 96 participants in some three-weeks online undergraduate courses discovered three-quarters of participants' time is spent listening to or observing online discussions (15). It is considered as active learning due to engagement with the content, thought, and reflection (16). Additionally, the literature indicates that learners' participation in online discussions can be enhanced by mixing audio or video discussion with online text discussions (17-21). Audio or video components enhance communication and reference to peers, encourage learners to participate in the discussions, and support learners to elaborate on their responses, because it facilitates less time-consuming communication as compared with text discussion (17-19).

All the studies have suggested that online learning can be beneficial if students are able to adapt well. However, students' experience with virtual learning also poses definite importance in showing a better comparison between physical and online learning. Hence, the present study sought to

understand the impacts of online learning based on clinical year medical students' perceptions. There are a few elements that were to be explored: lecturers-students' interactions during the online course, students experience influencing the effectiveness of online learning, barriers to online learning, and ways to improve online learning effectively.

METHODOLOGY

A cross-sectional qualitative study was conducted among clinical year medical students at University of Cyberjaya (UoC). There is a total of 262 students in Years 4 and 5, with 79 lecturers and staff in UoC. This research focuses on understanding the outcome of online learning and its effectiveness based on clinical-year medical students' perceptions. Thus, we purposively selected participants from medical undergraduates as they had been learning via online for at least a year and were currently exposed to real-life clinical settings. A qualitative approach was considered as it can provide more concerned subjective analysis that can easily understand the relationship between causes and impacts on certain issues in the form of a story instead of just the cause and effect itself (3-4). A total of 23 participants were selected to participate in this research, which consisted of 18 medical students (13 individuals and a focus group of five), one IT staff, and four clinical years lecturers as key informants to provide in-depth information from their view. The sample size in this study was sufficient to reach saturation, this was recommended by previous studies showing that to reach data saturation in qualitative studies, a minimum total sample size of 12 is needed (22-24). The participants were recruited using a convenience sampling method as all participants are known to researchers. This research was only limited to Year 4 and 5 students, clinical lecturers, and IT staff in UoC who had experienced online learning. Among these students, those who had absenteeism issues or did not give consent were excluded.

On the other hand, researchers asked the key informants (lecturers and IT staff) to participate in the study by personally approaching them. After the recruitment procedure was completed, candidates were chosen at random to participate in interviews, which were scheduled in advance. The researchers used in-depth semi-structured interviews to gather data. Researchers have done the literature review to ensure all the important questions will be asked during the interview session. Questionnaires for students individually and focus groups are the same, as follows:

> As a clinical year medical student, how do you feel about online learning as compared to traditional in-class learning?
>
> What do you think of the technical support provided by the online learning platform?
>
> In what ways could online education programs serve your educational needs?

Based on the responses, they were asked more regarding methods to improve the quality of online learning, such as:

> How would you improve the quality of your online education?

For individual groups, researchers interviewed them one by one separately to gather the information needed. As for the focus group, another five different students were interviewed as a group to discuss the same questionnaires and researchers collected the outcome of the group discussion. A focus group was formed so students could discuss in-depth regarding their experience as different individuals may have differing perception. Thus, it may be more beneficial to interview them as a group. It is understood that usually at least more than one focus group was formed in a study (25), but our study also consists of individual groups, and repetitive data was found in both groups. Thus, it is assumed

that five participants in the focus group was sufficient to achieve the point of saturation. As all sessions were conducted online using Microsoft Teams due to COVID-19 restrictions, researchers recorded them into a video with the consents of the participants and they also wrote down useful data during the interview.

Qualitative data analysis is defined as "working with data, organising it, then breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learnt, and deciding what you will tell others" (26). Thematic analysis was done by analysing and identifying the relevance of the data and was coded under common themes. Then, the data was finalised and transferred into the software and categorised manually into a qualitative analysis software – QDA Miner Lite version 2.0.9 (2004-2016). All results from individual groups and focus groups were mixed as all answers given were under the same themes, then summarised into tables via the software.

Because this is a qualitative study and the interview sessions will be videotaped, the primary ethical aspect is informed permission. The researchers educated all participants on the research aims and the method. They were assured of anonymity and confidentiality because their personal information was kept private. Researchers ensured that all participants joined the study voluntarily and were free to leave at any point without remuneration if they had any problems throughout the session. Furthermore, no organisation financed this study.

Table 1: Interviewees' Background for the In-Depth Interviews (Individuals)

Interviewees	Positions
A1	Medical student
A2	Medical student
A3	Medical student
A4	Medical student
A5	Medical student
A6	Medical student
A7	Medical student
A8	Medical student
A9	Medical student
A10	Medical student
A11	Medical student
A12	Medical student
A13	Medical student
A14	Lecturer
A15	Lecturer

A16	Lecturer
A17	Lecturer
A18	IT Staff

Table 2: Interviewees' Background for the In-Depth Interviews (Focus Group)

Interviewees	Positions
B1	Medical students
B2	Medical students
B3	Medical students
B4	Medical students
B5	Medical students

RESULTS

The results were divided into four main sections to provide clear explanation based on the research objectives. The first section focuses on lecturers-students' interactions during the online courses, while the next section describes the effectiveness of online learning based on students' perceptions and experiences. Barriers to online learning are discussed in the third section which would show the disadvantages faced by students or lecturers. Finally, the last section provides suggestions on ways to improve online learning effectively.

Perceptions of the Impact of Online Learning on the Lecturer–Student Interaction

Table 3.1: Code frequency on impact of online learning on the lecturer – student interaction

Category	Code	Count	% Codes	Cases	% Cases
Learners' readiness	Lack of confidence in online	1	6.3	1	100.0
	More confidenceduring online learning	3	18.8	1	100.0
Communication barrier	Poor internet connection	4	25.0	1	100.0
	Inefficient interaction	2	12.5	1	100.0
	Lack of feedback from peers	1	6.3	1	100.0
External barrier	Students' conditions at home	1	6.3	1	100.0

Participation barrier	Limited interaction	3	18.8	1	100.0
Instructors' interest	Helpful and responsible	1	6.3	1	100.0

Learner's readiness

Learners' readiness is an important aspect of acquiring knowledge because that determines the interactions between lecturers and peers. In this study, students mentioned that they feel a lack of confidence in asking questions online while many of them mentioned they feel more confident online.

> During online class, students must ask in front of other students, so most students tend to step back and keep the question to themselves. Theh, they will text the lecturer after class rather than asking during the class (A1)

> Online is better as students can simply switch on the mic and ask questions, whereas in physical class, students will need to be confident to ask the questions directly (A3)

> I feel more confident to interact with the lecturers as there is no one around my physical surrounding (A5)

> I feel more confident and not awkward to voice out my curiosity (A6).

Communication barrier

Though the internet is a wonderful and necessary resource for online learners, it can also cause problems. Without a strong internet connection or high bandwidth, online learning becomes nearly impossible, and keeping up with the technical requirements of a chosen course can be stressful. This can lead to various communicative problems between the lecturers and students. The students mentioned that poor internet connection is the one of biggest communication barrier during their online class thus they suggested that face-to-face classes is way better than online.

> Unless there are connection issues, then communication will be a problem and disrupts the flow (A2, A9, A11, B1).

> For students, it is better to discuss face to face among peers (A3, B2)

> There was some communication barrier between students and lecturers when it comes to replying to messages as there was no immediate reply. Thus, it may be difficult to make certain decisions (A13)

Participation barrier

Conversion of formal teaching to online causes learners' participation to get limited and lecturers mentioned students need more hands-on experiences in their clinical years.

> Difficult to adapt as students in clinical years require hands-on experience (A14, A15, A17)

> We ask each student to switch on their cameras and perform the physical examination thoroughly, we ask questions to them and we have a feedback session at the end of the class (A14, A15, A17)

As for students, it is quite challenging too because they undergo the same situation and stress during online classes especially when they were not be able to physically meet their peers. Some of the students stated that they felt awkward when having classes online, especially when doing presentations.

> My interaction with other students is also decreased as I only interacted with my close friends or my team members (A7)

> It is still not the same as meeting each other face to face and not enjoyable and fun, feeling of awkwardness when presenting online because the reaction isn't the same (A10)

> A deeper connection could be formed through physical interaction. (A12)

Perceptions on How Students' Experience Influences the Effectiveness of Online Learning

Table 3.2: Code frequency table on students' experience influences the effectiveness of online learning

Category	Code	Count	% Codes	Cases	% Cases
Learners' participation	Motivation	5	15.8	1	100.0
	Network support	7	22.0	1	100.0
Instructors' content	Instructional strategies	2	6.4	1	100.0
	Feedback	2	6.4	1	100.0
Instructors' barriers	Teaching styles	4	12.5	1	100.0
	Communication barriers	5	15.8	1	100.0

Learner's participation

In this study, we can see that learners' participation can influence the effectiveness of online education based on the students in UoC.

> Cameras should be turned on during classes to include more participation. This helps students to maintain their focus better in class and to avoid one-way interaction (A6)

Motivation is worth exploring in an online course because students are inclined to participate less, and high attrition rates lead to motivational questions in distance education for instructional designers.

> Students should try their best to stay motivated when participating in classes. This can be done by engaging more with the lecturers by switching on their cameras or by having feedback sessions (A1, A2, A3)

> Good internet connection can improve the interaction among students and lecturersin terms of participation in class (A4, A9)

Instructors' content

Due to the change from physical classes to online classes, instructors may have to change and adapt their ways to make syllabus content suitable for online methods. Though it may seem easier compared to students' ways of adaptation, it is the instructors who have the responsibility to ensure students are able to catch up with the instructions and take home messages even via online.

Due to the lack of physical interaction, students would rely heavily on the instructors' content in online classes.

> Lecturers should provide a proper briefing for each topic before each class (A5)

To improvise their educational content, it is important for lecturers to receive feedbacks, but as the online facilitator, it is essential to learn what most hinders and/or enhances the learning process to be able to improve the teaching-learning collaboration.

> I would ask for my students' feedback on my classes and improvise according to their needs (A17)

Instructors' barriers

As all educators are aware, tapping into various learning styles and resources is essential to help students successfully achieve the learning outcomes. One of the first learning curves was redesigning the syllabus.

> I would frequently make sessions interactive by providing my students with questions and case scenarios for them to be able to understand clinical cases better (A17)

> I would ask questions to each of the students in class to make sure there is mutual understanding among the topics learned (A18)

Learning content must be disseminated via e-learning that promotes critical thinking, reflection, active participation, and that thoughtfully engages learning. Regular communication via announcements and class emails provides more guidance and keeps students on track.

> Lack of prompt response from lecturers makes it difficult to communicate among each other and make certain decisions (A2, A7, A9)

Perceptions on Factors Determining the Quality of Online Instruction

Table 3.3: Code frequency table on factors determining the quality of online instruction.

Category	Code	Count	% Codes	Cases	% Cases
Internal barriers	Attitude	3	11.5	1	100.0
	Lose focus	3	11.5	1	100.0
	Exhaustion	1	3.8	1	100.0

	Stuck in comfort zone	1	3.8	1	100.0
Technical problem	Poor internet connection	1	3.8	1	100.0
Educational barriers	Lack of clinical experience	12	46.2	1	100.0
	Limited Q&A	1	3.8	1	100.0
	Limited communication	1	3.8	1	100.0
Instructors	Altered schedule	1	3.8	1	100.0
	Limited accessibility	1	3.8	1	100.0
External barriers	Unconducive	1	3.8	1	100.0

Internal barrier

The internal barriers are the mental or psychological blocks that preoccupy the innermost thoughts and obstruct active listening. Internal barriers correspond to hindrances inside of us, including thinking, attitude, perceptions, as well as the way of communication.

In relation to this research, the participants realised such internal barriers they are encountering are their attitude, focus, stamina, and comfort zone throughout the online learning. This is evidently by:

> I tend to take the classes for granted as all sessions can be recorded (A1)

> Online sessions can be recorded so students can refer to them anytime. We experience passive learning during online classes. Moreover, we only learn in our comfort zone because we do not experience real situations. (B1, B2, B3, B4, B5)

> Focus given during online sessions is not the same as in physical classes (A2)

> Online learning does require high concentration level to stay focused in class (A8)

> Online class is more tiring as compared to physical classes as physical classes have a fixed schedule (A12)

Technical problem

Poor IT infrastructure is a major issue in online learning which is encountered among the participants. This variation in connectivity may impact the type of online learning or constrain student engagement with the class. However, only one interviewee addressed this issue which may show less significance of this factor in influencing the quality of online learning. This is evidently by:

> Online learning has limitations in terms of network connection as it affects the online learning platform (A1)

Educational barrier

In addition, since the participants are in their clinical years, online learning is considered inefficient because they are deprived of many aspects, especially clinical experiences, and skills. This is evidently by:

> Online sessions are not as efficient, as learning requires physical contact with real patients (A3)

> Online learning is not sufficient because students are left behind in practical skills (A6)

> Online learning is less beneficial for those in clinical years (A7)

> Lecturers or students act as simulated patients; thus, students only know how to explain in medical terms but real patients would probably not understand. Students also may not know how to tackle issues with real patients (B1, B2, B3, B4, B5)

Students are having a hard time as they did not get to see and appreciate clinical signs present in patients suggestive of diseases. Insufficient clinical practices result in awkwardness for the students when performing clinical examinations for the patients. The gestures, placements of the students' hands and techniques are often wrong or might cause inconvenience to the patients due to lack of practice.

Instructors

Instructor presence is an important construct to consider when designing or facilitating online instructional experiences. However, with online learning, there are also some weaknesses of the instructors. An interviewee (A12) said

> Online classes require more flexibility in terms of time for students as lecturers may not conduct classes according to the original timetable… (A12)

This reflects the downside from the instructors that cause inconvenience to the students to prepare mentally for another session at another time.

On top of that, the participants felt that there is limited accessibility between students and instructors, as stated below:

> Lecturers may not know students' conditions in online settings (B1, B2, B3, B4, B5)

This barrier was thought to evolve as the instructor was at a disadvantage because they have limited access to evaluate students and monitor ongoing situations via online.

External barrier

External barrier corresponds to hindrances outside that includes people and environment. Participants believe that unfavourable environment did affect online learning, as stated below:

> It is not conducive enough to be considered a good replacement for face-to-face sessions. (A9)

An unconducive environment is multifactorial. As most students attend learning sessions online from home during Movement Control Order (MCO), the problem arises there. This is well demonstrated by:

> The most ideal way would be to be in a conducive environment such as stable internet connection, a proper study room and a quiet space to avoid distractions. (A12)

Having online learning at home, the students are weighted with family members' issues. Some of them encounter family members that lack in understanding of their commitments as students and were instructed to do house chores or asked for favours amid online learning.

> Students will need to have their own study area and let other family members know that they're having classes. (A2)

Perceptions on Ways to Improve Quality of Online Education

Table 3.4: Code frequency table on ways to improve quality of online education.

Category	Code	Count	% Code	Cases	% Cases
Technical support	Network improvement	2	6.3	1	100.0
	Learning platform standardisation	1	3.1	1	100.0
Learners' adaptations	Learners' readiness	6	18.8	1	100.0
	Suitable learning environment	14	43.8	1	100.0
	Learners' participation	3	9.4	1	100.0
Instructors' adaptations	Teaching styles	3	9.4	1	100.0
	Instructors' interest	3	9.4	1	100.0

Technical support

In addition, high network availability plays a vital role in student's or lecturers' participation. As stated by the following code, the higher quality of the network will ensure a better flow of online education whereas students or lecturers with weaker network speed will jeopardise the quality of the experience as well. It has been clearly stated by:

> Government can improve the network quality by providing better telecommunications network to help students adapt to online learning (A1)

> Education institutions can subscribe to a better learning platform and cooperate with the lecturers to standardize the learning platform thus the students do not have to subscribe or download many different softwares (A5)

Learners' adaptations

This factor may affect students' input during online classes, and they must find a solution to overcome such troubles. In this study, a suitable learning environment would be beneficial while attending online sessions as indicated by the code above. While electronic devices are required for online learning, they easily steal attention for prolonged periods, as mentioned below:

> Having discussion with friends to enhance the understanding after the online sessions (A8)

> The most ideal way would be to be in a conducive environment such as stable internet connection, a proper study room and a quiet space to avoid distractions (A12)

According to the code after that, learners' readiness is a dimension to be improvised to maintain a better quality of online learning.

> We, students can prepare a schedule and wake up early to prepare ourselves for the class as if we are going to attend a face to face class. The preparation helps the mindset of focus during online classes (A10)

> Find ways to allow yourself to have a good mental state to able to give full focus and attention to the online class even though sometimes it is hard to apply due to unavoidable circumstances (A11)

In line with the code above, it is no doubt that learners' participation is a challenge in online learning.

> The students should engage more in class whenthe lecturers ask questions (A7)

> It would be better to include videos on practical techniques during the presentation or task-based learning (TBLs), so that students can ask lecturers. Role play sessions can also be conducted with friends or lecturers during online class, it allows students and lecturers to identify their flaws, so they can improve better (A9)

Instructors' adaptations

The expectations from lecturers towards the students will be different in online settings and this leads to a change of roles among the lecturers. As specified by the code in the table, some of our respondents had suggested the instructors changed their teaching method. Another difficulty faced by lecturers is the need to switch to different teaching methods to adapt to this new experience.

> Lecturers can attend courses to guide them on how to attract students' attention. In addition, maybe they can introduce platforms which pique the interest of students (A1)

> As for the instructors, they can improve online education by giving 5 minutes rest for every 45 minutes class and provide quizzes for the students at the end of classes (A7)

According to the code above, the attitude of instructors will influence students' input significantly as lecturers are to ensure all students can achieve their expectations from the online sessions. A few respondents and lecturers in this study had given their opinions on lecturers' interest in students' performances in online settings:

> By enabling everyone to switch on their cameras, the session can be more interactive and students will be more focused in class as compared to not switching it on (A13)

> I would usually conduct morning class when the students are more energetic. In the afternoon, I will conduct online history taking sessions to try to increase their energy levels"(A16)

DISCUSSION

Perceptions on Factors Influencing the Effectiveness of Online Learning

Learner's participation

In this study, we can see how learners' participation influences the effectiveness of their online education as students prefer to switch on their cameras and conduct an interactive session by initiating a discussion. In this regard, according to Abdullah, Bakar, and Mahbob (2012), an effective learning process occurs when students and educators (lecturers) can interact and participate in learning activities (27). Activeness in the form of attitudes/behaviours shown by students in learning is one form of participation in education, such as listening, responding, discussing, reading, writing, and others. With the active participation of students in lectures, it is hoped that it can help achieve learning goals to have better academic achievement (28).

According to our studies, we see students stated that network support plays a vital role in online learning. This is supported by a study done by Chung et al. (2020) where internet connection is one of the greatest challenges of online learning among students (29). Six out of ten students use mobile data for internet connection other than Wi-Fi access (45%), free mobile data (44%), or pocket Wi-Fi (13%). With this result in mind, based on the studies of Siddiquah and Salim (2017) and Bisht et al. (2020), problems with the internet signal might become a barrier to students in their learning (30-31). The same findings from the study of Wickramanayake and Muhammad Jika (2018) indicate that unreliable internet connections are one of the barriers for students (32).

The barriers and concerns of implementing online teaching and learning include workload increased, the role of lecturers being different compared to traditional teaching, lack of technical, and administrative support and course quality may be reduced (33). The teacher's understanding of structuring and facilitating interaction through a web environment requires effective staff development to be confident and competent online teachers. This is consistent with our studies that showed students agree on how instructional strategies influence the quality of their online education.

Instructor's contents

Our studies have shown that the content provided by their instructors influences the effectiveness of online classes due to shifting from physical classes to online classes. This is consistent with an article

by Chametzky (2014) and Luyt (2013) that stated the content of online courses should be learners centered as this would enhance interactions with peers and lead to more discussions (8, 34). Learners and instructors should first learn how to effectively optimise technology before conducting online courses.

Instructor's barriers

The adjustment from physical classes to online classes causes a change in communication between the students and lecturers. Normally students can discuss and receive an immediate response from their instructors as they are able to meet physically. However, the only way to do this is to contact the lecturers via email or WhatsApp. According to our study, lecturers agreed that teaching style plays a factor in determining the effectiveness of online education. This is consistent with a study done by Anderson et al. (2011) which stated that in online classes, there are no clear objectives or guidelines on what should be expected from students, lecturers, courses, and staff (35). Communication barrier is also another major problem faced based on the lecturers in this study. This is in line with the article by Crawley et al. (2009) which stated lecturers hardly take control of the class to deliver the materials needed due to a lack of face-to-face interactions and visual contact (36).

Impact of online Learning on Lecturer Student Interaction

Learner's Readiness

For a learner to be successful with a variety of different literacy styles, one must parade rates similar to self-determination and an overall strive for excellence. With these qualities being absent, the learner may struggle to move forth throughout the experience due to high demands. Grounded on our study, our respondents felt more confident about themselves during online learning compared to a physical class. This is because they don't have to physically appear in front of the class to ask questions.

According to a research article by Khairuddin, Z. (2020) on students' readiness for online distance learning (ODL), it was stated that students' level of preparation in terms of technology availability, use, acceptance, self-directed learning, and training was highly influenced by the six ODL readiness factors of self-confidence, acceptance, and training (37). In terms of the accessibility of technology and their willingness to study through ODL, it can be said that most students appeared doubtful of their readiness to engage in ODL. Apart from that, the students are almost prepared to adjust to ODL. The important stakeholders including universities, faculties, and educators, must better understand how prepared students are for ODL and be ready for more ODL.

Therefore, a learner's readiness with a good attitude and preparedness of handling the online class helps contribute to teaching-learning sessions with confidence.

Communication barriers

One of the greatest hurdles to student-lecturer engagement, according to our respondent, is poor internet connection. Apart from it, lack of feedback or replies from peers or lecturers via online had made the decision taking task delayed in certain circumstances and led to inefficient interaction as mentioned by students. This is in line with the study of Kemp and Grieve (2014), which also indicated

that in-class activities generally include quick feedback from peers and a tutor as a significant benefit (39).

As for now, face-to-face instruction provides dynamic learning attributes not found in web-based teaching. The classroom setting provides more provocation, stimulant, and direction for the scholars.

External barrier

One of the challenges in moving to online learning arrangements on a good scale is the variability of capacity to support their children's learning. While all parents might want to work out for their children to succeed, the fact is that several might not be in place to support their children for a spread of reasons. In line with a study conducted among students at the University of Philippines by Cuisia et al. (2020) it had been found that external barriers may well be associated with a lack of private spaces to study and majority of the scholars confirmed that their teachers had a tough time addressing their concerns during e-Learning (40). From this, we can say that the scholars needed extra assistance to improvise students' conditions at home during online class sessions for better student-lecturer interaction.

Participation barriers

As stated in our study, students felt uncomfortable and awkward having classes online, especially during a presentation, and felt there is limited interaction between students and lecturers. This is often because they are not be able to meet their lecturer and peers physically for an interactive session. The conceptions of teaching from the student's point of view are vital because then we all know the sort of teaching students prefer and whether the evaluation system is acceptable.

Students don't appear to be passive learners, according to their participation in teaching and learning. They favour student-centered teaching strategies like dialogues and discussions. Students may believe that online conversation diminishes this sense of community with peers and instructors, even when classes are just partially online.

Instructor's interest

A survey done among students in an India university by Muthuprasad et al (2021) about their perception of online teaching during COVID-19 pandemic demonstrated the instructor's incompetence and interest. A teacher's interest in teaching, communication skills as well as the capacity to effectively present using multimedia materials is crucial. The study's findings demonstrate unequivocally that ineffective professors may be a major factor in the failure of online courses. And it requires additional investigation into the possibilities of the recent initiatives in online practical training to help further build appropriate models or applications that meet the needs of the actual world (41). However, in our study, the students felt that lecturers are mostly helpful and responsible, and showed good interest in their teaching job via online.

In a nutshell, it was known that poor quality online instruction or interest could dwindle pupil engagement andliteracy, and discourage continuity. Therefore, it is not solely the students but the speakers' involvement in online teaching can make the session fruitful.

Barriers of online learning affecting students' understanding

Educational barrier

One study carried out by Boling et al. (2012) found that most of their study participants viewed online courses as individual learning and limiting interaction with others. Students described feeling isolated from their teachers, from the content of the course, and from their classmates (42). Similarly, the participants from UoC experienced limited communication with lecturers and friends. Communication skills can be defined as the transmission of a message that involves the shared understanding between the contexts in which the communication takes place (43). Teacher communication skills are important for a teacher in the delivery of education to students (44). Nevertheless, several participants of this study agree that online learning limits the Q&A session between students and lecturers. In consequence, their academic performance might be affected which is the student's major concern.

Besides, a study stated that an online learning environment can affect students' motivation in different ways, such as professors not being able to discuss the topic or not leaving any room for inquiries, which would lead to misinterpretations of the topics (45). Many of the online tasks limited the ability of the students to develop a higher level of cognitive abilities and imaginative thinking (46). Most participants agreed that they lack clinical experience as they are not able to enter the hospital for their clinical practice. Alsoufi et al., (2020) stated in a study that 54.8% of responders disagreed with the idea of practicing e-learning for clinical aspects as e-learning cannot cover practical lessons (46).

Instructors

Nevertheless, there are also several issues with the instructors. According to our study, several participants agreed that the effectiveness of online learning is lacking due to the instructors. The effectiveness of online learning is with students' active feedback in which usually the students are being called out to be assessed by the professors who observe the students' body language and facial direction (48). However, the result showed a few participants opposed this statement as some students may not understand during online sessions. Some lenient instructors in online learning will keep teaching without being aware of students' participation and presence in class. The series of four studies found a positive relationship between boredom and attentional problems (49-52). Even in higher education boredom is prevalent which proves that 59.0% of university students experience boredom and 30.0% experience boredom most of the time (51). Another challenge when engaging in online learning is compromising common learning time between instructors and students who are at different locations. Hence, the participants feel restricted in planning ahead as the replacement class might be held during weekends.

External barrier

One of the advantages of online learning is it is easy to access and can be held anywhere with a strong internet connection which is conducive for some people. Physical classes do require the students to be present on campus and properly dressed which is the complete opposite to online classes. However, Boca et al., (2021) reported many respondents consider that being in a face-to-face and physical presence in amphitheaters is beneficial and is consistent with the results of the study done with participants at the University of Cyberjaya. Also, the majority disagreed that e-learning can replace traditional teaching methods (53). Some factors might be accountable for this unfavourable online learning such as an unconducive environment, limited facilities like gadgets to use in online learning, and financial matter. Salina et al., (2020) reported some of the participants admitted that they will face problems from a lack of IT equipment especially the laptop or computers (54). Nonetheless, the method an individual uses to study also plays an essential role. Some of the students agree that they

could easily understand and catch up on the learning only by a demonstration that demands physical classes. Also, the participants admit an unconducive environment is a big challenge for them as well such as the unavailability of a study room at home and incomprehensible family members.

Internal barrier

Despite the advantages that technology has to offer, it was discovered that pupils still have trouble paying attention to the information that is being provided to them (49). According to this study, some respondents reportedly find it easy to lose concentration while taking online classes and paying attention to the subject being delivered. This pattern of excessive content is wearing down the students and leading them to focus on other things that is consistent. Some students use social media or online distractions to lessen their boredom or tension in class (51). Additionally, our study indicates that attitude is also a concern. Similarly to this, according to a study by Lathrop (2011), procrastination is unavoidable in online classes since students are unable to physically engage with their colleagues and because deadlines are flexible (55).

Technical problem

Many of the students claim that they are falling behind as they tend to miss out on chunks of discussion when the internet freezes. Some parts of Malaysia experience poor internet connectivity due to geographical areas. Not only that, the comparatively sluggish internet speed during the MCO is largely due to high usage and infrastructure issues. Some UoC participants agreed on this matter, especially those who live in rural areas. This result is congruous with a study conducted in Libya, which showed that most of the students believed that the quality of the local internet was not good enough to facilitate e-learning platforms (47). In addition, the problems might be due to different places. Gonzales et al., (2018) and Rasheed et al., (2020) both reported students living at home are likely to have stable connectivity to internet as opposed to students in hostels (56-57). Thus, it is important to take into consideration of the places the students are currently living as it might affect the quality of the internet connection. In a study by Salina et al., (2020), many of the participants claim to encounter internet problems; either low internet speed or no Wi-Fi connection at all (54). Indeed, this is a crucial matter being emphasised by the participants as they face struggles such as being unable to or experience lag when sharing materials and presentations, or having a broken voice during the online classes.

Perceptions on ways to improve quality of online learning

Technical support

Our study is consistent with a study conducted by Mukhtar et al. (2020) which showed that they suggested that government should invest in expanding the telecommunication network throughout the country to easily resolve internet connectivity issues (58).. Chung et al. (2020) also gave the same advice even though private telecommunication companies in Malaysia have offered a free 1 Gigabyte of broadband data daily to allow students to engage in online learning (29). However, they found that it is not sufficient for all students who do not have access to Wi-Fi at home.

In addition, this study also suggested standardizing the online learning platform to prevent confusion caused by having to adjust to several systems. The synchronisation of online platforms used by the university for online teaching and learning has also been mentioned by Chung et al. (2020) to prevent

issues with students dealing with various platforms utilized by various instructors. Additionally, according to the study, this might aid students who are anxious about online learning (29).

Learners' adaptations

The respondents ranked working together utilising online communication tools as the second-highest engagement technique (59). The least effective tactic was using a virtual lounge for discussions outside of class. This is at odds with our study because some of our respondents preferred to discuss their course materials outside of the classroom. The categories of respondents in the two studies could be the cause of the different results. Since all our responders are undergraduates, they have greater time for peer conversations. The respondents to a different survey, however, were graduate students who most likely work full-time. Additionally, Aziz Ansari et al conducted research from 2021 revealed that students who have a spare room for their studies are happier with their academic experience (60).

Additionally, learners' preparation encompasses learner control, desire for learning, computer and Internet self-efficacy, and self-directed learning (12). Like in-person classes, students must prepare for online sessions in order to concentrate. This finding is in keeping with other research that suggested students needed self-control to commit enough time to their coursework and turn in assignments on time (61-62, 11). Students would be able to concentrate and comprehend material well in online environments if sufficient preparations were completed prior to the upcoming sessions.

Learners' participation would be likely to determine the interactions between learners themselves or with lecturers. Some participants in our study believed that there was still much room for improvement in students' participation in online learning. It must be improved because it influences the learning environment and vice versa. It is in line with studies conducted by Ahn et al. (2013), who found that the online learning environment affects learners' participation in online learning activities and proposed that peer-to-peer contact would encourage participation (63). According to a French study, people who don't procrastinate much tend to participate more, which has a beneficial effect on their performance (64).

Instructors' adaptations

Online learning requires both students and instructors to interact well, so the learning environment can be more conducive. The expectations from lecturers towards the students will be different and this leads to a change of roles among the lecturers. Chung et al. (2020) mentioned that university needs to organise more training sessions to equip lecturers to be more effective in delivering online learning content (29). Online learning was not a popular thing in Malaysia previously; thus, the lecturers may need training or take time to adapt to this new norm. Furthermore, a systematic review conducted by Hamari et al. (2014) proved that gamification is effective in many fields, especially in education (65). Thus, it can be a new approach for instructors to apply to improve students-lecturers' interactions during online learning.

Finally, as it depends on the instructor's motivation to accomplish his and the student's goals, their engagement is significantly correlated with their interests. To assure the calibre of students' participation, instructors should ask more questions. This approach is compatible with a study that claims it can encourage learners to participate (64), but the instructor needs to avoid getting too involved in the conversations as studies have shown that this can discourage learners from participating (66-67). In our survey, the lecturers also noted that they frequently questioned their students to ascertain the different sorts of learners they were. Michinov et al. urged teachers to recognise people who put off tasks and encourage their participation at the beginning of online courses (64).

CONCLUSION

In conclusion, most people still prefer in-person instruction over online learning due to the difficulties they encounter when taking online classes, some of which include a lack of focus and comprehension of the subject matter, a decline in effective communication between the students and instructors, and their living circumstances. Many agreed that online learning has an enormous impact on their clinical year as medical students due to lack of exposure. To sum up, learners' readiness is the biggest factor accountable for improvisation of online learning. Throughout this study, we can see the impacts of online learning vary among the clinical years medical students at UoC. Most of the students are in dispute about proceeding with the classes via online as they will be at disadvantage.

STUDY LIMITATIONS

This study was greatly constrained by time and resources. As it is a qualitative study, participants have more control over the content of the data collected. Thus, results cannot be verified objectively against the scenarios stated by the respondents.

Moreover, sample size and its variation are also an issue in this study, participants were all from University of Cyberjaya, so the results are not statistically representative. All the interview sessions could only be done online due to COVID-19 pandemic which restricted face-to-face sessions, so the environment would have been slightly different compared to face-to-face settings. There have been few moments where interviewees' connection was lost due to technical issues.

Though there were few limitations, the research was able to be done smoothly without any trouble faced. Apart from those mentioned above, the research design and literature review were extensively revised by researchers.

RECOMMENDATIONS

The primary goal of this study is to evaluate the impacts of online learning on medical students based on their perceptions. Time restrictions meant that it could only be completed at UoC. This constraint suggests that by adding more participants from other higher education institutions, the results would be more comparable. To get a better understanding of the teaching style, more lecturers or medical graduates who had also been exposed to online learning during their clinical years can be recruited in future studies to provide a better view of the learning method. Research design should use quantitative analysis to support other confounding elements that may contribute to certain outcomes in order to better improve the study.

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