ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

# FACTORS AFFECTING ONLINE DISTANCE LEARNING IN ADVANCED LIFE SUPPORT AMONG MEDICAL STUDENTS: A QUALITATIVE APPROACH BASED ON THE TECHNOLOGY ACCEPTANCE MODEL

**Ismail M Saiboon[1], Alias Mahmud[1], Harwati Hashim[2], Vaanee Poongkuntran[1], Amirudin Sanip[1], Mohd. Hisham Isa[1]**

[1]Department of Emergency Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, 56000 Kuala Lumpur, Malaysia.
[2] Faculty of Education, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia
(Corresponding author: mohimois@ukm.edu.my)

## Abstract

In the borderless world of education, open distant learning (ODL) is becoming an essential tool in education. This study explored the factors that influence ODL in advanced life support (ALS) training. An exploratory qualitative study was conducted among final-year medical students in Klang Valley, Malaysia. The students have undergone learning ALS using a fully online distant approach. Focus group discussions (FGD) were held using semi-structured questions at the end of the training. Data were transcribed verbatim and analysed using thematic coding. Categories were derived based on the Technology Acceptance Model (TAM) which were perceived usefulness, ease of use, and attitude toward use. Thirty respondents participated in the study through purposive sampling. Five FGDs were conducted. A total of 12 themes were derived out of the three categories of TAM which were corrective feedback, scaffolding approach, repetition, internal motivation, self-efficacy, organised, personalised learning, technological advantage, enhance confidence, flexible learning, familiarity, and technical difficulties. Twelve key factors were identified influencing ODL in ALS learning. Among the important factors include corrective feedback, the scaffolding approach, the ability to engage in repetitive learning, internal motivation, ease of use, and increased confidence. They have significant impacts on students' willingness to adopt and use ODL, hence ultimately influence its effectiveness. Educators should also consider these factors when designing and implementing online learning programmes.

**Keywords:** Advanced life support, medical students, online learning, open distance learning, simulation

ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

**Abstrak**

Dalam dunia pendidikan tanpa sempadan, pembelajaran jarak jauh terbuka (ODL) semakin menjadi alat penting dalam pendidikan. Kajian ini meneroka faktor-faktor yang mempengaruhi ODL dalam latihan sokongan hidup lanjutan (ALS). Satu kajian kualitatif eksploratori telah dijalankan dalam kalangan pelajar perubatan tahun akhir di Lembah Klang, Malaysia. Para pelajar telah mengikuti pembelajaran ALS secara sepenuhnya dalam talian melalui pendekatan pembelajaran jarak jauh. Perbincangan kumpulan fokus (FGD) telah dijalankan menggunakan soalan separa berstruktur pada akhir latihan. Data ditranskripsi secara verbatim dan dianalisis menggunakan pengekodan tematik. Kategori kajian ditentukan berdasarkan Model Penerimaan Teknologi (TAM) iaitu persepsi terhadap keberkesanan, kemudahan penggunaan, dan sikap terhadap penggunaan. Seramai 30 orang responden telah mengambil bahagian dalam kajian ini melalui persampelan tujuan. Sebanyak lima FGD telah dijalankan. Secara keseluruhan, 12 tema telah dikenal pasti berdasarkan tiga kategori dalam TAM, iaitu maklum balas pembetulan, pendekatan sokongan (scaffolding), pengulangan, motivasi dalaman, kecekapan kendiri, pembelajaran yang teratur, pembelajaran diperibadikan, kelebihan teknologi, peningkatan keyakinan, pembelajaran fleksibel, kebiasaan dengan teknologi, dan kesukaran teknikal. Sebanyak 12 faktor utama telah dikenal pasti yang mempengaruhi ODL dalam pembelajaran ALS. Antara faktor penting termasuk maklum balas pembetulan, pendekatan sokongan, keupayaan untuk pembelajaran berulang, motivasi dalaman, kemudahan penggunaan, dan peningkatan keyakinan. Faktor-faktor ini memberi kesan yang ketara terhadap kesediaan pelajar untuk menerima dan menggunakan ODL, sekali gus mempengaruhi keberkesanannya. Oleh itu, para pendidik perlu mempertimbangkan faktor-faktor ini dalam mereka bentuk dan melaksanakan program pembelajaran dalam talian.

**Katakunci:** Pelajar perubatan, pembelajaran dalam talian, pembelajaran jarak jauh terbuka, simulasi, sokongan hidup lanjutan

## 1.0 INTRODUCTION

The COVID-19 pandemic prompted many educational institutions to shift their physical courses to an online learning approach, which has grown in popularity (Radha et al., 2020). The pandemic has led to a surge in demand for open distance learning (ODL) as schools and universities across the world were forced to shut down (Meinck et al., 2022), resulting in a sharp increase in the number of people enrolling in online courses, webinars, and other forms of ODL (Lemay et al., 2021). ODL is a provision of distance education opportunities in many ways that seek to mitigate or remove barrier to access (Venturino & Hsu, 2022). The sudden increase in demand has led online learning platforms to adapt quickly to ensure that they could handle the increased traffic. This has led to changes in the way courses were delivered, with some platforms offering live online classes or synchronous approach (Detyna et al., 2022) and others shifting to prerecorded content or asynchronous approach (Saiboon et al., 2021).

One advantage ODL is that it is more accessible than traditional classroom-based learning (Nordin & Nordin, 2020). The pandemic compelled many people to work from home (Barrero et al., 2021), causing ODL to become more in demand (Demuyakor, 2020) as learners can access courses from anywhere in the world, at any time. Many countries have implemented various forms of online learning to maintain education continuity (Cesco et al., 2021). Despite its many benefits, ODL also faces many challenges, such as teachers adapting their teaching method and maintaining students' engagement and motivation during online classes (Bahar et al., 2020). Some learners may struggle with the lack of face-to-face interaction and may find it difficult to stay motivated without a traditional classroom structure

ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

(Esra & Sevilen, 2021), on top of a short attention span (Romli et al., 2022). Another challenge with ODL is the potential for technical issues, such as Internet connectivity problems, hardware issues, or software glitches (Nur Salina et al., 2020). A study conducted in Malaysia in 2020 found that technical issues such as slow Internet speed, server downtime, and software compatibility issues, can hinder the learning process (Nur Salina et al., 2020). These technical issues can disrupt the learning experience, which is frustrating for both students and teachers and making it difficult for learners to complete their coursework (Nazilah, 2021). Moreover, a study conducted in China reported that switching to online learning resulted in a higher level of anxiety, stress, and depression in students (Peng et al., 2022).

ODL in medical education offers many benefits, but it also comes with its own unique set of challenges that needs to be addressed to ensure all students have access to quality education. Teaching methods that work well in a physical classroom setting may not be as effective in an online environment. Time management and self-discipline are vital aspects of ODL (Jaradat & Ajlouni, 2021), which can be challenging, particularly for medical students who struggle with time management. Furthermore, apart from the cognitive aspect of teaching–learning, imparting psychomotor skills is also an important part in medical education. It is more challenging to teach psychomotor skills and teamwork through an online approach. ODL may have some shortcomings, particularly the lack of hands-on practice, limited feedback, and interactivity, and students may face distractions (Hollis & Was, 2016). Although studies showed that video-based online learning may produce outcomes as good as the face-to-face approach (Mohd Saiboon et al., 2014), teaching psychomotor team performance through an online approach needs to be explored (Seymour-Walsh et al., 2020).

Hence, this study seeks to explore the factors, including issues that require knowledge, decision-making, and psychomotor in team performance, which affect the ability of medical students to effectively learn online. Technology acceptance model (TAM) was used to explore these issues because it provides a structured framework that analyzes how users perceive and interact with technologies.

### Theoretical framework

The theoretical framework that underpinned this study is based on TAM, which is derived from the theory of reasoned action (TRA) (Taherdoost, 2018). TAM provides a useful framework for understanding how users perceive and interact with new technologies. It is important to understand the factors that influence teaching and learning, especially when technology is being introduced. Based on TAM, the three main categories that need to be considered are perceived usefulness, ease of use, and attitude toward use. This study is expected to provide some insights regarding the factors that drive technology adoption and use.

## 2.0 MATERIALS AND METHODS

### 2.1 Study Design and Setting

An exploratory qualitative study was conducted among final-year medical students in the Faculty of Medicine of a university located in Klang Valley, Malaysia. Moreover, the study was conducted in the form of focus group discussions (FGDs) using semi-structured questions. The study was approved by the institution's research and ethics committee (PDI-2021-022) and was conducted from November 2021 to July 2022.

### 2.2 Participants

Participants were recruited via purposive sampling, targeting individuals who had completed advanced life support (ALS) training through a fully online, remote learning method known as ORBIT DeBRIEF. Upon

ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

being briefed about the objectives of the study, consenting participants were scheduled for an interview. The ORBIT DeBRIEF approach involves letting the participants undergo a period of asynchronous teaching, synchronous teaching, and debriefing process. Asynchronous teaching sessions were conducted through screen-based simulation (SBS) using the ClassMarker web application (ClassMarker Pty Ltd, Sydney, New South Wales, Australia) and self-instructional videos (SIVs) to teach the theoretical knowledge regarding ALS and emergency procedures, respectively. Synchronous teaching sessions were conducted in real time with the educator facilitating the hands-on part of the ALS learning from a remote location. The debriefing was conducted after the asynchronous and synchronous teaching–learning sessions using the DeBRIEF technique (Ismail, 2023). The entire teaching and learning session were conducted through a fully online interaction.

### 2.3 Interview

Participants were informed that the interviews would be recorded for subsequent transcription and that all comments would remain confidential to protect their privacy and minimize response bias. Contact information was collected from participants who consented to be contacted later for respondent validation. Data were collected through FGDs using semi-structured questions based on the interview protocol (Table 1). A single interviewer (IMS) conducted a face-to-face interview in the emergency department training room. The FGDs were conducted with five groups, each comprising six participants. Each interview lasted between 60 and 75 min and was recorded and transcribed verbatim by a researcher (VP). An iterative questioning approach was used, whereby new issues and themes were included in the later discussion. Researchers also asked probing questions at their discretion to explore new emerging themes. Significant observations from the physical expressions and gestures of the participant based on field notes recorded during interviews were also incorporated. The interviews were conducted until saturation was achieved and no new themes emerged.

**Table 1.** The questions asked in the semi-structured interviews.

| No | Questions asked in the semi-structured interview |
|---|---|
| 1 | How do you find learning ALS with the present method? |
| 2 | Which area in ALS do you find most difficult to understand?<br>Why? |
| 3 | Which area in ALS do you find most easy to comprehend?<br>Why? |
| 4 | What do you wish to be included in the teaching of ALS?<br>Why? |
| 5 | On a scale of 1-10, what is your confidence level in managing cardiac arrest resuscitation? Explain why? |
| 6 | What is your opinion if the teaching of ALS is to be done fully Online vs face-to-face? |
| 7 | What are the difficulties you think you will encounter? Explain why? |

### 2.4 Data Analysis

The audio that was recorded from the FGD was transcribed and cross-checked by the researchers (IMS, AM, MHI) for accuracy and subsequently verified by the participants. Thematic coding was used to analyze the transcripts (Merriam & Tisdell, 2015). Three basic steps

ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

were involved in conducting content analysis, which was led by an expert (AM) in qualitative research method. These steps include identifying meaning units, creating categories, and developing categorization themes (Lune & Berg, 2017). The NVivo 12 software was used to accelerate the analysis process, which was performed with caution. Moreover, the researchers compared each interview through triangulation of data from each group. The categories were based deductively from TAM (Liao et al., 2018), and the themes were obtained inductively from the interview based on the study objectives. Three basic steps were involved in conducting content analysis based on three categories that were deducted from TAM. These include identifying codes, creating themes, and grouping the themes. The transcriptions were repeated to further understand the contextual meaning. Texts with the same central meaning were segmented into codes, and themes were then developed from the codes to represent threads from the dimension of the categories. Codes sharing the same manifested threads and contents were divided into themes. The researchers performed accumulation and comparison of themes to explore similarities and differences in the participants' perceptions. Subsequently, codes were sorted together into themes. The entire text was examined, and the researchers appropriately categorized each theme according to the content and the contextual meaning. The data were presented in the form of categories, themes, and quotations that were related to them. To ensure participant confidentiality, data are presented in aggregate, and individual quotes are anonymized using randomly assigned numbers.

## 3.0 RESULTS

The participants included 30 respondents (19 females and 11 males), aged between 24 and 26 years old, which are divided into five focus groups with. Their medical education experience ranged from 5 to 7 years. Table 2 summarizes the demographic characteristics of the participants.

**Table 2.** Demographic data of the participants.

| Characteristics | n | % |
|---|---|---|
| Gender | | |
| Male | 11 | 37 |
| Female | 19 | 63 |
| Age (years) | | |
| 24 | 25 | 84 |
| 25 | 4 | 13 |
| 26 | 1 | 3 |
| Years of education | | |
| 5 | 29 | 97 |
| 6 | 0 | 0 |
| 7 | 1 | 3 |

Analysis of the transcripts for these focus group interviews was performed according to the three main themes of TAM: perceived usefulness, ease of use, and attitude toward use for the ALS course using the ORBITS DeBRIEF approach. Table 3 lists the themes emerging from each category.

**Table 3.** Categories, themes, and quotes derived from the interview.

ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

| Category (Operational Definition) | Themes | Codes |
|---|---|---|
| Perceived usefulness<br>(perceived usefulness is referring to individual's perception that using the new technology will enhance or improve her/his performance) | Corrective feedback | • "we have more interaction with the supervisors. Supervisors can correct us at any time." (A3P17)<br>• "if we missed out on something, did something wrong during the previous asynchronous session, it could have been corrected on that day (synchronous session)." (A2P8)<br>• "it's a good thing you can get direct feedback after your supervisor actually viewed" (A5P29)<br>• "when we do all the procedures, when each of our...steps is corrected, it's like one to one session with the supervisor despite not having teaching face to face" (A5P25)<br>• "students get to go back, reflect and find out in Google or other portals." (A4P22) |
| | Scaffolding approach | • "checklist of actually what should be done so we would know in the future what should be done." (A5P25) (guided instructions)<br>• "it is a pretty good method to approach as online learning in this current pandemic era."(A1P3)<br>• "We are clarifying stuffs with our supervisors throughout the two weeks. It's quite beneficial." (A2P8)<br>• "It would be helpful if in the video like a short points of what should we do." (A4P23) |
| | Repetition | • "We should revise and then we go and perform it." (A2P10)<br>• "the repetitiveness of the SIV make it easy to learn" (A1P6)<br>• "we were able to do it beforehand by ourself even before that someone need to teach us" (A1P6) (Pre-engagement practice)<br>• "we are able to remember it better and we practise more somehow." (A2P11) |
| | Internal motivation | • "we have the pressure (positive) in ourselves that we should watch the videos." (A2P10)<br>• "so it's good that we are doing it online. there is a positive pressure" (A2P10) |
| Ease of use<br>(Perceived ease-of-use (PEOU) – Davis defined this as "the degree to which a person believes that using a particular | Self-efficacy | • "The things the materials given for classmarker, it has to do with the theory bits of ED (cardiac resuscitation). Memorizing or getting familiar with algorithm is easy, very theoretical." (A5P27)<br>• "The bag valve mask because I did it before so I'm familiar with it and then, I find it easy. (The hand |

ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

| Category (Operational Definition) | Themes | Codes |
|---|---|---|
| system would be free from effort") | | grip technique) C and E also." (A2P9)<br>● "Class-marker (on cardiac resuscitation). see whether we really understand what's going on. It really helps us to view on track" (A5P29)<br>● "we were able to do it beforehand by ourself even before that someone need to teach us" (A1P6) |
| | Organized | ● "ORBITS (the approach) is very organized" (A4P20)<br>● "I think this has really improved me in the understanding of the resuscitation, how it (ORBITS DEBRIEF) is organized." (A4P20)<br>● "Airway adjunct as it was direct (simple) procedure, and it was very well recorded and did describe in the video." (A2P12) |
| | Personalized learning | ● "by giving us the video, we can actually practise it according to our own timing and then, it's flexible. So, we have ample time to like do and record if we are not really happy with it." (A2P9)<br>● "You don't have to wait for your entire team to gather there. You can do it at your personal time." (A5P29)<br>● "it's like one-to-one session with the supervisor despite not having teaching face to face" (A5P25) |
| | Technological advantage | ● "in intubation video I can see the vocal cord and surrounding structures clearly, and this help me to show you are doing it right." (A529)<br>● "video (SIV) is able to (be) film properly." (A1P13) |
| Attitude towards use (Attitude - the degree to which a person likes or dislikes the object) | Enhance confidence | ● "I think my confidence level (initially) was two out of ten because I have no clue what to do. I just know how to do some CPR, but I don't really know the step by step. Now, so from one to ten, I think I would put my confidence level on at an 8. I feel like I had a lot of practises." (A1P7)<br>● "we can see our improvement from there. Like from we don't know something to learning something to know to the point we are confident in doing something." (A4P20)<br>● Honestly, initially I would say zero. I was not that confident to conduct one because I feel like I did not have enough practise. But after ED (ORBITS DeBRIEF), I would say I am very confident. One to ten, I would say ten. (A4P23) |
| | Flexible learning | ● "I can go on my own pace. I have more freedom to start, to study and to practise it." (A1P7) |

ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

| Category (Operational Definition) | Themes | Codes |
|---|---|---|
| | | • "I like the repetitive thing" (A2P11)<br>• I could like practice first and digest everything first and then practises on my own pace. (A1P1) |
| | Familiarity | • "I think for me CPR is the easiest because you only need to focus on your own compression and make sure it's a high-quality CPR." (A3P14)<br>• The bag valve mask because I did it before so I'm familiar with it and then, I find it (hand grip technique) C and E also (easy). (A2P9) |
| | Technical difficulties | • "I think certain techniques really need a physical approach" (A5P29)<br>• "For them to correct our wrong technique is...quite hard compared to it being done in a physical setting" (A2P8).<br>• "clarity of the videos because when I saw the video regarding the jaw thrust, I couldn't really appreciate the jaw thrusting." (A2P9) |

This study also highlighted some limitations of the online remote learning approach, such as the time-consuming nature of recording videos for assessments, the challenge of capturing appropriate video angles, and the confusion caused by alternative techniques shown in other online videos.

## 4.0 DISCUSSION

The online remote learning approach used in this study is an interesting and potentially beneficial approach for effective teaching and learning in medical education especially involving areas of performance, decision-making, and knowledge acquisition. 12 themes emerged from this study, which were corrective feedback, scaffolding approach, repetition, internal motivation, self-efficacy, organized learning, personalized learning, technological advantage, enhance confidence, flexible learning, technical difficulties, and familiarity.

Of these themes, corrective feedback appears to be one of the most beneficial elements of online learning approach. The participants appreciate the ability to receive feedback on the things that they do almost immediately from the supervisors. This helps in the process of teaching and learning, whereby areas that they are unsure of either in terms of theory or performance can be corrected through feedback given by the supervisor. The feedback that was posted on Telegram, an online messaging platform, will be beneficial not only to the particular student but also to the rest of the class, which helps in producing a shorter learning curve for the students (Weinzimmer & Esken, 2017). The participants also felt that having the supervisors watch their recorded performance and provide feedback is like having a personal tutor. All these factors contribute to the enhancement of learning with the implementation of technology.

Scaffolding simplifies complex tasks by breaking them into manageable sections, guiding students through each stage, and gradually increasing the complexity as students become more proficient. Teachers employ this technique to assist students in developing new skills and problem-solving abilities,

ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

with the support of supervisor. In this ALS learning approach, the theory portion was divided into multiple small, structured modules, while procedural skills were broken down into smaller, individual tasks which have to be performed and with the recording sent to be reviewed at each stage. By eventually combining both the theoretical and practical components during the synchronous cardiac resuscitation practice, learners gain a clearer understanding of the overall task, leading to more meaningful learning and improved outcomes.

Repetition helps to reinforce learning and improve memory retention, making it a powerful tool in teaching and learning. In this study, participants were given nine sets of SIVs that they can repetitively watch at their own time and place. Internal motivation drives learners to actively engage with the material, and repeated practice ultimately leads to mastery of the subject. Repetition also helps learners in developing muscle memory, leading to fluency and proficiency in their skills (Tabibian et al., 2019). Therefore, scaffolding and repetitive practice with internal motivation are important factors in successful self-directed learning.

Ease of use is the second category in TAM. Through online remote learning, the participants can access SBS from anywhere if they have access to an Internet connection. The participants found it simple to operate, repeatable, and a good way to practice before heading to actual skill stations. These factors and the organized approach will enhance the learning process of the participants (McAuliffe & Winter, 2014). The advantage of using technology is its ability to allow viewing of procedures from a difficult-to-see angle. For example, while performing endotracheal intubation (ETI), a camera can easily show the structures of the hypopharynx in contrast to face-to-face classroom teaching. These allow the participant to appreciate the structures when performing the ETI. This technological advantage can also be appreciated in other procedural teaching (Saiboon, 2016).

The participants generally showed positive attitudes toward the ORBITS DeBRIEF approach. Almost all demonstrated increased confidence in ALS and the procedures after completing the online modules. This improvement may be attributed to factors such as ease of use, perceived usefulness, flexibility, and/or familiarity. Furthermore, familiarity plays a crucial role in enhancing teaching and learning, as participants are more likely to understand and retain new information when they are already acquainted with a topic. This is because they can build on their existing knowledge and link new concepts to what they already know (Abdalla & Eladl, 2019).

Nonetheless, with all the advantages conferred by the approach and the technology, the participants faced some elements of technical difficulties. One of the most noticeable is the use of a video camera during the recording process, which relates to the angle of shots. This issue affects both the participants and some SIVs. Some participants felt that they needed to be taught how and from what angle to record the performance. For instance, the video of their performance may not clearly show what they are doing, necessitating the supervisor's request that they repeat the procedures. Conversely, the SIV needs to be improved in one of the procedures, such as the jaw thrust, because the participants were unable to detect the subtle movement of the jaw during the thrust. Different recording angles impact students' perception of the instructor in a classroom setting. According to research by Olsen (2021), a direct eye-level recording angle was associated with better learning outcomes, higher engagement, and greater satisfaction with the video (Oslen, 2021).

## 5.0 STUDY LIMITATIONS

ISSN: 1985-5826 AJTLHE Vol. 17, No. 1, December 2025, 15-26
Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

Some limitations must be acknowledged in this study. First, the participants were unsure of how to take a quality video, as some videos may be lower in quality than that of the other participants who are more comfortable with the technology. This could limit the usefulness of their video for an assessment, and researchers may need to provide additional guidance and support to participants who are unsure of how to take video. Second, this study was only conducted in a single center. A multicenter study would produce better generalizability results. Finally, this study was not conducted on completely uncontaminated subjects because some of them had previously performed a few of these procedures in a prior rotation. Pure non-contaminated subjects involving preclinical students would be better research participants.

## 6.0 CONCLUSION

This study identified 12 key factors that are grouped into three categories, which influenced ODL based on the TAM framework. Important factors include corrective feedback, scaffolding approach, ability to engage in repetitive learning, internal motivation, ease of use, and increased confidence. These elements significantly impact students' willingness to adopt and utilize online learning platforms, ultimately affecting the effectiveness of such programs. Technical aspects, such as video recording, also pose challenges that educators must address when opting for ODL. Educators should consider these factors when designing and implementing online learning programs to ensure success.

## 7.0 ACKNOWLEDGMENTS

The authors would like to acknowledge the staff of the Department of Emergency Medicine for their support in completing this study. Special thanks to Dr. Muhamad Munawar, head of the medical student module, for his assistance with this research. The authors would also like to extend their gratitude to Dr. Mohammad Hafiq and Dr. Shiraaj for their valuable contributions.

## 8.0 REFERENCES

Abdalla ME, Eladl MA. Student perception of the effect of problem familiarity on group discussion quality in a problem-based learning environment. GMS Journal for Medical Education. 2019;36(3).

Bahar N, Wahab SN, Ahmad ND. Understanding Challenges Faced in Online Teaching and Learning Among Malaysian Universities' Instructors During COVID-19 Pandemic. In2020 Sixth International Conference on e-Learning (econf) 2020 Dec 6 (pp. 154-157). IEEE.

Barrero JM, Bloom N, Davis SJ. Why working from home will stick. National Bureau of Economic Research; 2021 May 3.

Cesco S, Zara V, De Toni AF, Lugli P, Betta G, Evans AC, Orzes G. Higher education in the first year of COVID-19: Thoughts and perspectives for the future. International Journal of Higher Education. 2021;10(3):285-94.

Demuyakor J. Coronavirus (COVID-19) and online learning in higher institutions of education: A survey of the perceptions of Ghanaian international students in China. Online Journal of Communication and Media Technologies. 2020 May 19;10(3):e202018.

Detyna M, Sanchez-Pizani R, Giampietro V, Dommett EJ, Dyer K. Hybrid flexible (HyFlex) teaching and learning: climbing the mountain of implementation challenges for synchronous online and face-to-face seminars during a pandemic. Learning environments research. 2022 Apr 5:1-5.

Esra ME, Sevilen Ç. Factors influencing EFL students' motivation in online learning: A qualitative case study. Journal of Educational Technology and Online Learning. 2021;4(1):11-22.

Hollis RB, Was CA. Mind wandering, control failures, and social media distractions in online learning. Learning and Instruction. 2016 Apr 1;42:104-12.

Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

Ismail M.S. Healthcare Simulation For Clinician Educators: A Practical Approach (ISBN 978-967-251-985-0). Bangi: Penerbit UKM; 2023.

Jaradat S, Ajlouni A. Undergraduates' perspectives and challenges of online learning during the covid-19 pandemic: A case from the University of Jordan. Journal of Social Studies Education Research. 2021 Mar 26;12(1):149-73.

Lemay DJ, Bazelais P, Doleck T. Transition to online learning during the COVID-19 pandemic. Computers in human behavior reports. 2021 Aug 1;4:100130.

Liao S, Hong JC, Wen MH, Pan YC. Applying technology acceptance model (TAM) to explore users' behavioral intention to adopt a performance assessment system for E-book production. EURASIA Journal of Mathematics, Science and Technology Education. 2018 Jul 19;14(10):em1601.

Lune H, Berg BL. Qualitative research methods for the social sciences. Pearson; 2017.

McAuliffe M, Winter A. Applying academagogy: the transference of an organised heuristic teaching approach to the digital realm. EDULEARN14 Proceedings. 2014:316-24.

Meinck S, Fraillon J, Strietholt R. The Impact of the COVID-19 Pandemic on Education: International Evidence from the Responses to Educational Disruption Survey (REDS). International Association for the Evaluation of Educational Achievement. 2022.

Merriam SB, Tisdell EJ. Qualitative research: A guide to design and implementation. John Wiley & Sons; 2015 Aug 24.

Mohd Saiboon, I., Jaafar, M.J., Ahmad, N.S., Nasarudin, N.M.A., Mohamad, N., Ahmad, M.R., Gilbert, J.H.V. 2014. Emergency skills learning on video (ESLOV): A single-blinded randomized control trial of teaching common emergency skills using self-instruction video (SIV) versus traditional face-to-face (FTF) methods. Med Teach 36(3): 245-50

Nazilah A. Counselling students' perception of online learning during COVID-19 in Malaysia. Electronic Journal of E-Learning. 2021 Oct 15;19(4):pp282-295.

Nordin N, Nordin N. Impact of Pandemic COVID-19 to the Online Learning: Case of Higher Education Institution in Malaysia. Universal Journal of Educational Research. 2020.

Nur Salina I, Mazlina N, Bakar A, Sharifah Wajihah Wafa SS. Online learning challenges during pandemic COVID-19 in Malaysian higher learning institution. Universal Journal of Educational Research. 2020;8(12):7151-9.

Olsen D. The impact of camera angles in learning videos on the perception of teaching excellence and emotional connectedness of students in the creative industries. Compass: Journal of Learning and Teaching. 2021 Jan 28;14(1):110-20.

Peng X, Liang S, Liu L, Cai C, Chen J, Huang A, Wang X, Zhao J. Prevalence and associated factors of depression, anxiety and suicidality among Chinese high school E-learning students during the COVID-19 lockdown. Current Psychology. 2022 Jan 27:1-2.

Radha R, Mahalakshmi K, Kumar VS, Saravanakumar AR. E-Learning during lockdown of Covid-19 pandemic: A global perspective. International journal of control and automation. 2020 Jun;13(4):1088-99.

Romli MH, Foong CC, Hong WH, Subramaniam P, Wan Yunus F. Restructuring education activities for full online learning: findings from a qualitative study with Malaysian nursing students during Covid-19 pandemic. BMC Medical Education. 2022 Dec;22(1):1-7.

Saiboon IM, Qamruddin RM, MBBch BA, Jaafar JM, Bakar AA, Hamzah FA, Eng HS, Robertson CE. Effectiveness of teaching automated external defibrillators use using a traditional classroom instruction versus self-instruction video in non-critical care nurses. Saudi medical journal. 2016 Apr;37(4):429.

Saiboon IM, Zahari F, Isa HM, Sabardin DM, Robertson CE. E-Learning in teaching emergency disaster response among undergraduate medical students in Malaysia. Frontiers in public health. 2021:426.

Received: 08 February 2025, Accepted:30 June 2025, Published: 15 December 2025
https://doi.org/10.17576/ajtlhe.1701.2025.02

Seymour-Walsh AE, Weber A, Bell A, Smith T. Teaching psychomotor skills online: exploring the implications of novel coronavirus on health professions education. Rural and remote health. 2020;20(4).

Tabibian B, Upadhyay U, De A, Zarezade A, Schölkopf B, Gomez-Rodriguez M. Enhancing human learning via spaced repetition optimization. Proceedings of the National Academy of Sciences. 2019 Mar 5;116(10):3988-93.

Taherdoost H. A review of technology acceptance and adoption models and theories. Procedia manufacturing. 2018 Jan 1;22:960-7.

Venturino, M., Hsu, YC. Using *WhatsApp* to Enhance International Distance Education at the University of South Africa. *TechTrends* 66, 401–404 (2022). https://doi.org/10.1007/s11528-022-00718-9

Weinzimmer LG, Esken CA. Learning from mistakes: How mistake tolerance positively affects organizational learning and performance. The Journal of Applied Behavioral Science. 2017 Sep;53(3):322-48.