

The Challenges of E-Learning Readiness Among UTHM Students Towards COVID-19 Situation

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Abstract

Since the case of COVID-19 rises, all institution faces new challenges whereby classes have to be conducted online. In the regards, students need to adapt with this new online learning environment by start setting their mind. This study investigates the challenges of electronic learning (e-learning) readiness among UTHM students during COVID-19 situation. Structured online questionnaire used in quantitative method were applied where involved a total of 375 respondents from UTHM undergraduate student at the main campus. Moreover, SPSS software has been used to analyse the data. The dimension of e-learning readiness focused on this research and listed as computer and internet self-efficacy, learner control, online communication self-efficacy, self-directed learning, and motivation for learning. The finding of this research showed that all the dimensions were recorded mean score at a high level and computer and internet self-efficacy was the highest mean score among the five dimensions. This research also found that lack of feedback was the most challenge faced by UTHM students. It concludes that the UTHM undergraduate student were ready to conduct the classes using e-learning.

1. Introduction

The Movement Control Order (MCO) was implemented in Malaysia, as well as in numerous other countries globally, aiming to flatten the COVID-19 transmission curve. COVID-19, also known as Corona Virus Disease 2019, emerged in early 2020 and swiftly disseminated worldwide (Rafique *et al.*, 2021). The Ministry of Higher Education (MOHE) mandated all public and private educational institutions in Malaysia to adopt e-learning as the mode of instruction until December 2020 (Chung, Noor, *et al.*, 2020).

Given the human-to-human transmission of the virus, measures like social distancing and avoidance of crowded places became imperative. Consequently, most governments temporarily closed schools and institutions prone to large gatherings until further notice. Emergency remote teaching was proposed to ensure continuity in students' education amidst the abrupt closure of educational institutions. Consequently, traditional face-to-face education temporarily gave way to online learning (e-learning) (Aboagye *et al.*, 2020).

This challenge seems to have impacted the entire education system, especially higher education, leading to the emergence of a new educational era dubbed "e-learning." E-learning, defined as learning facilitated outside the traditional classroom setting, heavily relies on electronic technologies such as online classes and portals (Sankar *et al.*, 2020). Disparities between developed and developing nations were noted, with poorer countries facing obstacles like limited internet access, inadequate ICT literacy, and content development vulnerabilities.

Before transitioning to e-learning, assessing students' readiness and potential success in an online environment is crucial. Success in traditional classroom settings doesn't automatically guarantee success in e-

learning environments (Aboagye *et al.*, 2020). With minimal face-to-face interaction with instructors, students must exhibit strong self-discipline in time management. Additionally, instructors require proper training to develop suitable learning materials for students (Ismail *et al.*, 2020).

The sudden transition to remote learning amid the Movement Control Order (MCO) implementation on March 17, 2020, left institutions grappling with unprecedented challenges. Prior to the MCO announcement, many students had already returned to their hometowns across Malaysia. Public institutions, prior to the March 16, 2020 announcement, actively encouraged instructors to adopt online teaching methods to alleviate overcrowding. Numerous instructors underwent crash courses in online teaching tools like Google Classroom, Google Meet, Zoom, etc., with assistance from colleagues. The Malaysian Ministry of Higher Education authorized institutions to conduct online teaching or e-learning, provided all students had access to instructors and met infrastructure requirements. Subsequently, a revised academic calendar was issued, mandating all teaching activities to be conducted online from April 14, 2020, until the end of the semester (Chung *et al.*, 2020).

However, several factors may impede students' learning experiences on e-learning platforms. These include decreased motivation, delayed feedback or support due to instructors' limited availability, and feelings of isolation due to the absence of physical classmates. Nonetheless, these challenges can be mitigated through instructors adapting their teaching methods to suit students' needs. However, if the educational process remains entirely online, these challenges may exacerbate due to instructors' limited experience with e-learning and the constrained timeframe for adapting teaching methodologies. Notably, a survey conducted by the School Education Gateway at the pandemic's onset revealed that 66.9% of respondents were first-time users of online platforms, indicating both students' and instructors' unpreparedness for a fully online learning environment (Coman *et al.*, 2020).

Consequently, both university instructors and students encountered numerous hurdles. According to the Organization for Economic Cooperation and Development, institutions grappled with issues like balancing online courses, which could impact students' health by prolonged screen exposure, and assessing students' mental well-being. Universities also struggled with maintaining course content relevance, coherent communication within the academic community, and student acquisition and retention. On the other hand, students faced challenges such as accessibility, connectivity, inadequate equipment, and social isolation, as revealed by research focusing on students' perspectives on e-learning (Coman *et al.*, 2020). This study aimed to address the following objectives such as (i) To identify the types of E-learning methods adopted by the UTHM students, (ii) To determine the UTHM students' readiness for E-learning and (iii) To analyze which factor pose the most challenges of E-learning for UTHM students.

2. Literature Review

2.1 E-Learning Readiness

Preparedness plays a pivotal role in effectively integrating e-learning (Mirabolghasemi *et al.*, 2019). E-learning readiness entails individuals' capacity to proficiently utilize e-learning resources and multimedia technologies to enhance the quality of learning (Yilmaz, 2017). It encompasses both the physical readiness of institutions to adopt e-learning and the necessary conditions for its successful implementation. Assessing e-learning readiness aids higher education institutions in assessing their readiness, identifying areas for improvement, and refining their strategies for implementing e-learning systems. An organization's overall readiness for e-learning is determined by four key elements: technology, innovation, people, and self-development, with technology being particularly crucial for enabling the implementation of an effective e-learning system (Al-araibi *et al.*, 2019).

Additionally, e-learning readiness encompasses students' possession of the essential information, skills, and attitudes for effective learning in such an environment. Students' readiness significantly contributes to the advancement of e-learning and enhances engagement quality in e-learning environments (Yavuzalp, 2021). It encompasses various components including computer and internet self-efficacy, learner control, online communication self-efficacy, self-directed learning, and motivation towards e-learning (Yilmaz, 2017).

2.2 Dimension of E-Learning Readiness

The dimension of e-learning readiness comprises elements like computer and internet self-efficacy, learner control, online communication self-efficacy, self-directed learning, and motivation towards e-learning.

2.2.1 Computer & Internet Self-Efficacy

Given the reliance of online lectures on advanced technology, students must possess adept skills in effectively utilizing computers and the internet (Chung *et al.*, 2020). Computer self-efficacy denotes users' confidence in their ability to navigate basic computer systems, while internet self-efficacy pertains to users' assurance in their internet-related skills (Yilmaz, 2017).

Various factors influence students' utilization of technology for learning, including their individual computer proficiency, attitudes towards technology, learning preferences, and support from peers and instructors. Components such as search self-efficacy, communication self-efficacy, organizational self-efficacy, differentiation self-efficacy, and reactive/generative self-efficacy play distinct roles in predicting online anxiety within e-learning contexts. Studies examining the correlation between internet self-efficacy and internet anxiety have highlighted the varying significance of components like search self-efficacy, communication self-efficacy, organizational self-efficacy, differentiation self-efficacy, and reactive/generative self-efficacy in predicting internet anxiety within e-learning environments. Furthermore, a more nuanced relationship between internet anxiety and internet identification has been observed, suggesting that while internet anxiety may not significantly associate with online identification among students with high internet self-efficacy, a positive correlation exists between these variables for students with low online self-efficacy (Chung *et al.*, 2020).

2.2.2 Learner Control

Learner control signifies the autonomy individuals have in directing their learning activities by choosing content based on their specific needs. It involves making decisions regarding the route, flow, and sequence of instructional elements, offering students flexibility in shaping their academic direction (Lange, 2018). As outlined by Yilmaz (2017), learner control encompasses an individual's personal learning experience and the extent to which they guide this process according to their preferences.

In e-learning, students must take charge of their own learning in the absence of face-to-face interactions with instructors. Despite being studied for over half a century, learner control lacks a precise definition or theory due to its multifaceted nature (Chung *et al.*, 2020).

2.2.3 Online Communication Self-Efficacy

The efficacy of online communication within e-learning heavily depends on students' online communication self-efficacy, a crucial factor in addressing communication hurdles in virtual settings. The readiness of students to participate in electronic correspondence significantly impacts their ability to anticipate their performance in e-learning environments. Research indicates that male students often demonstrate higher levels of self-efficacy in online communication, rendering them more inclined towards mixed learning approaches in comparison to their female counterparts (Yasin *et al.*, 2020).

With the absence of in-person interaction between instructors and students in e-learning, online communication becomes the primary means for students to engage with peers and educators. Active participation in online communication is vital for students to evaluate and absorb their learning by posing inquiries and expressing their thoughts and feelings (Chung *et al.*, 2020). Online communication self-efficacy encompasses individuals' familiarity with communication norms and language specific to e-learning environments, along with their ability to effectively articulate themselves within such contexts (Yilmaz, 2017).

2.2.4 Self-Directed Learning

Self-directed learning, as a learning paradigm, cultivates independence in the learning journey and offers learners the chance to engage with external resources beyond conventional classroom confines to fulfil educational objectives. In university settings, self-directed learning encompasses various facets, including self-management, the inclination for learning, self-regulation, computer literacy, and personal factors such as age, gender, and language learning apprehension. An examination into students' preparedness for e-learning found a positive correlation between the three dimensions of self-directed learning and computer utilization, while also highlighting diverse associations with language learning concerns. Notably, the desire for learning demonstrated the most robust correlation with computer usage (Chung *et al.*, 2020).

Moreover, self-directed learning constitutes a pivotal aspect of e-learning readiness, delineated as a process wherein learners independently or with minimal guidance identify their learning requisites, set objectives, choose suitable learning methodologies, and appraise learning outcomes (Yilmaz, 2017). As per Chung, Noor, & Mathew (2020), self-directed learning empowers students to seize control of their learning journey by diagnosing learning needs, defining goals, implementing learning strategies, and evaluating performance and achievements. Within the e-learning milieu, self-directed learning plays a critical role in ensuring students are equipped for this mode of instruction. Self-directed learners are more inclined to actively participate in learning endeavours such as accessing online resources, fulfilling assignments, and establishing and assessing learning milestones.

2.2.5 Motivation for Learning

Motivation for e-learning, another vital aspect contributing to e-learning readiness, is defined as a dynamic state encompassing physical, cognitive, and emotional facets, which compel individuals to participate in e-learning activities (Yilmaz, 2017). Motivation initiates and sustains goal-oriented behaviours, impacting what, how, and when we learn. Learners who are motivated tend to adopt a deeper approach to learning, engage in challenging tasks, actively involve themselves, derive enjoyment, and exhibit improved performance, persistence, and creativity (Chung *et al.*, 2020).

Both intrinsic and extrinsic motivation serve as mechanisms to drive students' learning efforts. Intrinsic motivation stems from personal growth, influencing individuals' interests and decisions in life. Conversely, extrinsic motivation arises from the pursuit of external rewards or incentives. Motivation plays a pivotal role in students' ability to retain, comprehend, recall, apply, analyse, and synthesize knowledge. As previously underscored, the importance of student motivation in online learning cannot be overstated (Chung *et al.*, 2020).

2.3 Learning Method

E-learning empowers learners to utilize customized tools tailored to their preferences, facilitated by advanced and responsive technologies. This principle underscores contemporary educational philosophies, highlighting the importance of accommodating individual learning styles. The delivery methods of e-content in virtual classrooms, along with the involvement of instructors, students, interactive resources, modes of interaction, and various other elements, are categorized into two main types: synchronous and asynchronous e-learning. Both synchronous and asynchronous learning tools are integral in humanizing online courses by replicating the classroom environment, facilitating information exchange, and fostering social interaction not only between students and instructors but also among peers. This section delves into the aforementioned modes and associated challenges (Shahabadi & Uplane, 2015).

2.3.1 Synchronous

Synchronous e-learning has expanded significantly over the years, driven by established demands in various educational contexts. Unlike traditional settings, there is no physical gathering in the online educational environment. Familiarity with synchronous e-learning may stem from specific vendors, tools, or software programs designed for its creation and delivery. It entails real-time instruction and learning-oriented engagement, often scheduled for convenience. This mode of learning facilitates live, interactive experiences, influenced by key factors such as classroom dynamics, media integration, and conferencing capabilities. Researchers have extensively described synchronous e-learning, emphasizing its two core components: interaction and time. Defined as the real-time interaction between students and instructors via the web, synchronous e-learning fosters direct engagement and immediate feedback (Shahabadi & Uplane, 2015).

In a synchronous e-learning environment, instructors and students convene online to conduct lessons through a specific platform. This collaborative approach has demonstrated both advantages and disadvantages. Benefits include real-time information sharing, direct access to instructors for queries, and active participation. Synchronous classes typically commence with all participants gathering in a videoconference setting, emphasizing learner-centred instruction followed by interactive activities. This mode of learning transitions into a student-centred environment, where participants engage based on instructional prompts. Real-time involvement in synchronous e-learning has been associated with increased student satisfaction, enhanced learning outcomes, and reduced dropout rates (Amiti, 2020).

2.3.2 Asynchronous

Various elements, encompassing their nature and capabilities, delineate asynchronous online learning in diverse ways. One prevalent characterization of asynchronous e-learning depicts it as an interactive learning community free from the constraints of time, location, or physical classroom boundaries. Unlike synchronous e-learning, which centres around real-time engagement, asynchronous e-learning employs computer-mediated communication (CMC) to facilitate knowledge sharing across a network of individuals, transcending temporal and spatial limitations. Through asynchronous online discussions, learners participate in learning activities at their own convenience, embodying the ethos of "learning anytime, anywhere" (Shahabadi & Uplane, 2015).

Given the importance of flexibility, online courses are often structured asynchronously and scheduled accordingly. However, it's recommended to impose deadlines for task completion, while ensuring that course materials remain accessible round the clock. Audio/video lectures, handouts, articles, and presentations are readily available in asynchronous formats, enabling learners to engage with content at their preferred time and location. This delay in response fosters critical thinking among students, encouraging deeper engagement with course material. Moreover, asynchronous classrooms offer students greater flexibility and autonomy, allowing them to progress at their own pace (Amiti, 2020).

2.4 Challenges of E-Learning

2.4.1 Poor Internet Connectivity

Several regions in Malaysia experience subpar internet connectivity, largely attributed to increased demand and infrastructural challenges exacerbated during the Movement Control Order (MCO). Despite having access to computers for academic purposes in most cases, poor internet connection remains a significant concern for students, as highlighted in a study on internet usage during the MCO period. Bandwidth issues and unavailability of internet are commonly reported infrastructural obstacles, particularly affecting individuals residing in remote areas. Consequently, slow internet speeds have become a pervasive issue across the country during the MCO (Ismail *et al.*, 2020).

2.4.2 Lack of Feedback

Feedback serves as a pivotal component in the teaching-learning dynamic, enabling students to pinpoint learning gaps and gauge their progress accurately. It should furnish precise insights into a learning task or process, bridging the divide between desired outcomes and current comprehension or skill levels. Students leverage feedback to refine deficient areas hindering their educational advancement. In the realm of online learning, where face-to-face interactions are limited, feedback assumes heightened significance. Given the spatial and temporal separation between instructors and students, educators must deliver high-quality feedback to facilitate learning efficacy and sustain motivation. Particularly in online peer assessment scenarios, reinforcing feedback proves instrumental in enhancing the caliber of students' projects. Nonetheless, the sheer size of student cohorts in online learning environments can pose challenges for instructors in furnishing comprehensive and meaningful feedback. Hence, the exploration of automated tools aimed at enhancing feedback practices has been advocated (Cavalcanti *et al.*, 2021).

2.4.3 Non-Conducive Environment

According to Ismail *et al.* (2020), individuals' reluctance to engage in online learning sessions stems from dissatisfaction with non-conducive environments. This observation is supported by research indicating similar challenges encountered in Pakistan. A significant proportion of students' hail from low-income households, often residing in cramped living spaces shared with younger siblings, lacking a designated area conducive to online learning. Consequently, participants may face obstacles in attending online classes due to familial or health-related issues.

2.4.4 Lack of Interest in E-Learning

This new teaching approach adversely affects students who rely on a conducive classroom environment and well-trained educators to grasp educational concepts. Moreover, there's no assurance that students will remain attentive or complete assigned tasks when learning online. The effectiveness of online learning is compromised by students' disinterest in the subject matter and distractions that impede their focus. Many students opt to forego online classes and assignments in favour of immersing themselves in the vast array of entertainment options available today. Schools face challenges in maintaining student engagement due to the plethora of entertainment alternatives, daily diversions, and the absence of the intrinsic motivation associated with in-person attendance (Paiz, 2020).

3. Research Methodology

3.1 Research Design

The study has purposed to examine the relationship between the challenges of e-learning readiness and the dimension of e-learning readiness. The sampling method used in this study is the probability sampling method which is stratified sampling. Stratified sampling has been done by calculate the ratio of each faculty.

3.2 Data Collection

Effective data collection is crucial as it systematically gathers information about the elements of e-learning readiness and assesses challenges associated with e-learning readiness. In this study, data was collected from the targeted population of undergraduate students at UTHM main campus, which was reported to comprise 11,243 students. A sample size of 375 respondents was determined to be adequate based on the Krejcie & Morgan table. The research instrument utilized was a questionnaire, adapted from Chung *et al.* (2020). The questionnaire consisted of four sections: Section A, Section B, Section C, and Section D. A 5-point Likert Scale was employed as the scale of measurement for Section C and Section D.

3.3 Data Analysis

Following the collection of data from all respondents, the subsequent step involves data analysis. This research study utilized the Statistical Package for the Social Sciences (SPSS) version 22. The researcher manually inputted the collected data into the SPSS software, facilitating the progression, measurement, and calculation of complex quantitative data. This approach aimed to reduce the time consumed by the researcher in evaluating the results. Additionally, a screening or cleaning approach will be employed during the data analysis process. This entails identifying incorrect or missing data that has been input. The screening procedure assists the researcher in avoiding inaccuracies when calculating the data in the data analysis.

4. Results and Discussion

4.1 Reliability Test

Table 1 shows the reliability of Cronbach's Alpha for challenges of E-learning is 0.795, computer & internet self-efficacy is 0.809, learner control is 0.711, online communication self-efficacy is 0.880, self-directed learning is 0.908, and motivation for learning is 0.918. The overall reliability test result was above 0.5 which indicated the good reliability and validity scale.

Table 1 Reliability test

Variables	Cronbach Alpha	No of item
Challenges of E-learning Readiness	0.795	4
Computer & Internet Self- efficacy	0.809	3
Learner Control	0.711	3
Online Communication Self- efficacy	0.880	3
Self-directed Learning	0.908	5
Motivation For Learning	0.918	4

4.2 Descriptive Analysis

4.2.1 Demographic

Demographic part was consisting of six items which are genders, age, course, year of study, current location, and internet coverage for current location. Female respondent is the highest respondent with percentage of 61.1% represent 229 respondents. The remaining respondent is male with percentage of 38.9% represent 146 respondents. Besides that, majority of the respondents are from 22-24 years old which is 57.1% representing 214 respondents. Moreover, majority of the respondents are from FKAAB, with 19.7% or 74 respondents participating in this research. The highest number of respondents were from 4th year which is 115 (30.7%) of respondent. Majority of the respondent which is 278 respondent equivalents to 74.1% of total respondent stayed at their hometown. Lastly, majority of the respondent have medium internet coverage which is 210 respondents representing 56.0% of total respondent.

4.2.2 Type of E-Learning Method

Based on Table 2 below, most of the respondent preferred to use asynchronous as e-learning method which is 259 respondent equivalents to 69.1% of total respondent while only 30.9% of the total respondent which is 116 respondents preferred to use synchronous.

Table 2 Frequency and percentage of type of e-learning method

Type of E-learning Method	Frequency	Percentage (%)
Synchronous	116	30.9
Asynchronous	259	69.1
Total	375	100

4.2.3 Dimension of E-Learning Readiness

Based on Table 2 below, most of the respondent preferred to use asynchronous as e-learning method which is 259 respondent equivalents to 69.1% of total respondent while only 30.9% of the total respondent which is 116 respondents preferred to use synchronous.

(a) Computer & Internet Self-Efficacy

Table 3 shows the total average of mean score for computer & internet self-efficacy. Each of the items for the first dimension were recorded with a high mean score according to the value tendency level. Meanwhile, the standard deviation for each element is in range from 0.601 to 0.669. The highest mean score in this item is "I feel confident in performing basic functions of Microsoft Office programs (MSWord, MS Excel, MS Power Point)" which value is 4.31 while the lowest mean score is "I feel confident in my knowledge and skills on how to manage software for online learning" which value is 4.19. The total average of mean score is 4.24 where it remained at a high level with a standard deviation of 0.538.

Table 3 Computer & internet self-efficacy

Question	Mean	Standard Deviation
I feel confident in performing basic functions of Microsoft Office programs (MSWord, MS Excel, MS Power Point)	4.31	0.601
I feel confident in my knowledge and skills of how to manage software for online learning	4.19	0.626
I feel confident in using the Internet to find information	4.22	0.669
Average	4.24	0.538

(b) Learner Control

Based on Table 4, the results of the items for the second dimension shows that all the items have a high mean score. It between 3.60 to 4.20. Meanwhile, the standard deviation for each item is in range from 0.764 to 1.114. In this table, the highest value has been stated in statement "I repeated the online learning materials based on my needs" which value is 4.20 while the lowest value of mean score stated in statement "I am not distracted by other online activities (WhatsApp, Instagram, Facebook) while learning online" which value is 3.60. The result showed the total average of mean score for learner control is 3.97 and the standard deviation of 0.724.

Table 4 Learner control

Question	Mean	Standard Deviation
I can direct my own learning progress while learning online	4.10	0.764
I repeated the online learning materials based on my needs	4.20	0.809
I am not distracted by other online activities (WhatsApp, Insta, FB) while learning online	3.60	1.114
Average	3.97	0.724

(c) Online Communication Self-Efficacy

Table 5 shows the mean score for online communication self-efficacy. Each of the items for the third dimension were recorded with a high mean score according to the value tendency level. Meanwhile, the standard deviation for each item is in range from 0.808 to 0.983. The highest mean score in this part is "I feel confident in using online tools to communicate with others" which value is 4.04 while the lowest mean score is in statement "I post questions in online discussion" which value is 3.74. The total average of mean score is 3.89 where it remained at a high level with a standard deviation is 0.814.

Table 5 Online communication self-efficacy

Question	Mean	Standard Deviation
I feel confident in using online tools to communicate with others	4.04	0.808
I express my thoughts through online text messages/posting comments	3.90	0.921
I post questions in online discussion	3.74	0.983
Average	3.89	0.814

(d) Motivation for Learning

Table 6 shows the mean score of motivation for learning. Each of the item for the fifth dimension were recorded with a high mean score. The range of standard deviation is between 0.833 to 1.063. The highest mean score in this part is “I am open to new ideas when learning online” and “while learning online, I improve from my previous mistakes” which value is 4.04 while the lowest mean score is in question “I like to share my ideas with others while learning online” which value is 3.79. The total average of mean score is 3.94 with the standard deviation is 0.842.

Table 6 Motivation for learning

Question	Mean	Standard Deviation
I am open to new ideas when learning online	4.03	0.833
I am motivated to do online learning	3.91	0.939
While learning online, I improve from my previous mistakes	4.03	0.836
I like to share my ideas with ideas others while learning online	3.79	1.063
Average	3.94	0.842

4.2.4 Challenges of E-Learning

Based on Table 7, it shows the mean score and standard deviation of the challenges of e- learning. Only two items were recorded with a high mean score which are poor internet connectivity and lack of feedback. While other items recorded as a moderate level according to the value tendency level. The item was in moderate level are non-conductive environment and lack of interest in e- learning. The range of standard deviation is between 0.939 to 1.166. Lack of feedback is the highest mean which is 3.98 while the lowest mean is non-conductive environment which is 3.29. The total average of mean score is 3.63 and the standard deviation is 0.842.

Table 7 Challenges of e-learning

Question	Mean	Standard Deviation
Poor internet connectivity	3.83	1.166
Lack of feedback	3.98	0.939
Non-conductive environment	3.29	1.116
Lack of interest in e-learning	3.42	1.046
Average	3.63	0.842

4.3 Discussion

4.3.1 What are the Types of E-Learning Methods Adopted by the UTHM Students in the Past?

Most of the respondent adopt asynchronous as e-learning method which is 259 respondent equivalents to 69.1% of total respondent while only 30.9% of the total respondent which is 116 respondents preferred to use synchronous. It shows that the UTHM student adopt asynchronous as their method of e-learning. According to Amiti (2020), student felt more comfortable because they could easily access offline when using asynchronous

method compared to synchronous. Moreover, it beneficial for doubtful and shy student, but it might be uncomfortable with computer mediated discussions.

4.3.2 What is the UTHM Students' Readiness for E-Learning?

All dimensions demonstrate a high level of proficiency (Table 8). The dimension of computer and internet self-efficacy exhibits the highest average mean score, followed by self-directed learning and learner control, while motivation for learning and online communication self-efficacy record the lowest scores. This suggests that respondents predominantly possess the ability to independently utilize computers and the internet.

Previous research by Chung *et al.* (2020) corroborates these findings, indicating that students possess skills in computer and internet usage. These skills encompass tasks such as online information retrieval, basic functions in MS Excel, MS PowerPoint, and MS Word, as well as managing online learning platforms. Consequently, they display a considerable level of confidence in engaging in online learning. Given the prevalent exposure of university students to technology-rich environments, they generally exhibit proficiency in technology utilization.

Table 8 Average mean score dimension of e-learning readiness

Dimension	Average mean	Level
Computer & Internet Self- efficacy	4.2418	High
Learner Control	3.9680	High
Online Communication Self- efficacy	3.8933	High
Self-directed Learning	3.9861	High
Motivation For Learning	3.9393	High

4.3.3 What are the Most Important Challenges Facing by the UTHM Students in an E-Learning Situation?

Based on Table 9 above, only two challenges are on a high level which are poor internet connectivity and lack of feedback, and the rest are on a moderate level which are non-conductive environment and lack of interest in e-learning. Lack of feedback is the most challenges for UTHM student due to the highest mean score rather than the other challenges, which are poor internet connectivity, non- conducive environment, and lack of interest in e-learning. This indicated that respondents need faster feedback from their lecturer.

As highlighted by Cavalcanti *et al.* (2021), feedback holds a pivotal role in the teaching-learning continuum as it facilitates students in pinpointing knowledge gaps and gauging their progress. Effective feedback entails offering specific information pertinent to a learning task or process, thus bridging the divide between desired and actual content comprehension or skill development. Utilizing feedback, students refine deficient areas or skills hindering their learning progression. In online learning environments, where face-to-face interactions among students are absent, feedback becomes even more crucial. Lecturers must furnish high-quality feedback to students to foster learning and motivation, particularly in scenarios where students are physically separated in online settings.

Poor internet connectivity was also the challenges that have been faced by the UTHM student even though majority of them got the moderate internet coverage. It means sometimes the internet are high and sometimes it is low. Chung *et al.*, (2020) presented that poor internet connectivity has been faced by majority of the respondent when it comes to e-learning. More investment for this infrastructure were needed to overcome these challenges.

Table 9 Mean score of the challenges of e-learning

Challenges	Mean	Level
Poor internet connectivity	3.83	High
Lack of feedback	3.98	High
Non-conductive environment	3.29	Moderate
Lack of interest in e-learning	3.42	Moderate

5. Conclusion

As overall, this research was conducted to identify the types of e-learning methods adopted by the UTHM students, to determine the UTHM students' readiness for e-learning, and to analyse which the most important challenge of e-learning for UTHM students. Based on the data collections, data analysis and discussions on the previous chapter, this research has answered the research questions and fulfilled the objectives in this research.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

*The authors confirm contribution to the paper as follows: **study conception and design:** Nurul Syahirah Azli, Ahmad Nur Aizat Ahmad; **data collection:** Nurul Syahirah Azli; **analysis and interpretation of results:** Nurul Syahirah Azli, Ahmad Nur Aizat Ahmad, Md Fauzi Ahmad; **draft manuscript preparation:** Nurul Syahirah Azli, Ahmad Nur Aizat Ahmad. All authors reviewed the results and approved the final version of the manuscript.*

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