International Journal of Modern Languages and Applied Linguistics
e-ISSN: 2600-7266

Communication Barriers Among UiTM Students in Open and Distance Learning During the Covid-19 Pandemic

Nur Emyliyana Amni binti Kasim [1], Nurul Nadiah Dewi binti Faizul Ganapathy [2]

[1 & 2] Akademi Pengajian Bahasa, Universiti Teknologi MARA

[1] emyliyana01@gmail.com
[2] nadiahdewi@uitm.edu.my

Article history:
Received: 8 September 2023 *Accepted: 6 October 2023* *Published: 1 December 2023*

Abstract

In the online learning environment, effective communication is crucial for the success of the learning experience, allowing students to ask questions, seek guidance, and actively engage with course materials and peers. This study investigated the communication barriers faced by students of UiTM in open and distance learning (ODL) during the COVID-19 pandemic. The objective of this study was to identify the communication barriers, assess the impact on students' learning process and investigate the influence of gender and field of study. This research employed a quantitative approach using a survey questionnaire to collect all the data in this research. The data analysis procedure was conducted using an Independent Samples T-Test and One-way ANOVA with IBM SPSS Statistics software. The research found that UiTM students faced psychological communication barriers most frequently, followed by physical, sociocultural, and technical barriers. These barriers had a negative impact on their learning process, with frustration from online communication difficulties being the most common effect. Surprisingly, gender and fields of study did not significantly influence these barriers. Implications for enhancing ODL quality include prioritising students' mental well-being through mental health support programs, fostering meaningful interactions among students, and creating an inclusive learning environment that addresses specific communication barriers faced by students. By addressing these barriers, the overall educational experience in ODL can be significantly enhanced.

Keywords: *communication barrier, open and distance learning (ODL), COVID-19 pandemic*

Introduction

The world went through a major disruption in education over the past two years due to the coronavirus disease 2019 (COVID-19) pandemic. Early in the year 2020, when nothing was known about the illness and there was neither a cure nor a vaccine, learning institutions around the world were forced to halt physical classroom instruction and withdraw students from their face-to-face learning environment. Then, it became necessary for learning institutions to pivot to open and distance learning (ODL) as their primary means of curriculum delivery. Open and distance learning refers to an educational experience where instructors and students are separated in time and space (Fidalgo et al., 2020). These extreme measures were intended to ensure the safety of learners and educators and mitigate the spread of the virus within higher education institutions.

Prior to the global pandemic, online learning in higher education had experienced its steady growth since the emergence of internet-based learning platforms. According to Müller and Mildenberger (2021), online learning, also referred to as blended learning, combines both online and face-to-face delivery meth-

ods. These courses typically involve a significant portion of content delivered online, including online discussions, complemented by occasional in-person meetings (Müller & Mildenberger, 2021). A study conducted by Dumford and Miller (2018) investigated the advantages and disadvantages of online learning. Overall, online learning offers the potential to provide greater flexibility in education, catering to the diverse needs of students. This flexibility has contributed to the rising popularity of blended learning, which integrates traditional face-to-face instruction with online components (Dumford & Miller, 2018). Additionally, online courses can also give students access to a greater variety of institutions and courses, which can improve their ability to follow their interests and objectives.

In fulfilling an efficient education in tertiary education organisations, communication among lecturers and students, also students with their peers bear great importance (Kayode, 2018). Communication between lecturers and students in the class holds significant importance in delivering learning materials better and providing learning guidance more effectively. This is because effective communication greatly influences students' understanding of the lessons, their learning motivation and determining their overall academic performance (Banwart, 2020). However, effective communication between lecturers and students in ODL is not always possible, and there are several barriers at different levels that can hinder the communication process and have a negative impact. Based on the literature review and the taxonomy of barriers to effective communication developed by Florek et al. (1983) cited in Quill (1995), four categories of communication barriers in ODL are identified: physical, technical, psychological and sociocultural.

Communication barriers can arise in open and distance learning for a variety of reasons, including language differences, technological issues, and cultural misunderstandings (Jureddi & Brahmaiah, 2016). These barriers can hinder the exchange of information and hinder the learning process. To overcome communication barriers in online learning, educators need to be aware of the potential issues and take steps to address them. This may involve providing additional support for students with language barriers, ensuring that all students have access to the necessary technology, and promoting a culturally inclusive learning environment. Additionally, students and instructors can work to improve their communication skills and be proactive in seeking help when needed. Therefore, the purpose of this study is to investigate communication barriers in ODL and its effects on students' learning process.

Research Objectives

This research seeks to:

1. identify the communication barriers faced by UiTM students in open and distance learning during the covid-19 pandemic;

2. determine the effects of communication barriers faced by UiTM students in open and distance learning on their learning process during the covid-19 pandemic; and
3. investigate the influence of gender and fields of study on communication barriers faced by UiTM students in open and distance learning during the covid-19 pandemic.

Literature review

Theoretical background

This study is guided by related literature reviews on the topic of effective communication and communication barriers in online learning. The framework is adapted from the taxonomy of barriers to effective communication and the adjustments developed by Florek et al. (1983) as cited in the article 'Barriers to Effective Communication by Quill (1995). Florek et al. (1983) studied communication barriers between a physician and patients in the context of healthcare. The authors classified communication barriers into 5 categories; environmental, physical, psychological, sociocultural, and transactional. However, in the context of education, the transactional barrier is not relevant as it concerns medical treatment and diagnosis methods. In addition, the present study focuses on communication in online learning instead of traditional learning in which instructors and students are able to communicate face-to-face. The researcher also referred to a recent study of communication barriers in the open distance learning system of education by Anjum et al. (2020) in order to construct a framework for this research. In their study, they proposed technical barriers as one of the barriers to effective communication in open and distance learning because online learning hugely depends on technology. There are differences in technology accessibility and individual aptitude toward technology usage which creates barriers during online learning (Anjum et al., 2020).

In the context of ODL, the geographical separation between instructors and students makes face-to-face communication impossible. While this can be beneficial for students who are unable to attend traditional face-to-face classes, opting for online courses, as mentioned by Amber and Miller (2018), the high accessibility of online courses also comes with its disadvantages, such as technical difficulties. According to Rahiem (2020), students in open and distance learning face internet access as the greatest barrier to online learning, while Marcial et al. (2015) pointed out that the technical skills of students in navigating online learning platforms and software are another great barrier to communication in ODL. Aside from that, psychological barriers are also a significant concern in ensuring a smooth online learning process, as students can become mentally impacted due to communication difficulties during ODL (Irawan et al., 2020). Apart from frustration with physical distance and technical difficulties during online classes, students also face anxiety in engaging in class discussions due to various reasons, such as feeling overwhelmed, fear of judgment, and lack of confidence (Ajmal & Ahmad, 2019). As a result, their motivation to effectively participate in online class discourse may be affected. Poor motivation to engage with online classes can also be attribut-

ed to sociocultural factors such as cultural and language barriers (Hebebci et al., 2020). According to Hebebci et al. (2020), cultural and language barriers can hinder effective communication during ODL by leading to misunderstandings, misinterpretations, and difficulties in expressing thoughts and ideas clearly.

The presence of communication barriers in ODL can significantly impact students' learning process. Kosar et al. (2020) mentioned that when communication channels are not effectively established, students may feel isolated and disconnected from their instructors and peers, leading to reduced engagement and motivation to participate in online courses. As a result, students might find it challenging to seek clarification or support when needed, hindering their understanding of course materials and hindering their overall academic performance (Abu Bakar et al., 2020). Moreover, communication barriers can impede collaboration and group work, limiting the exchange of ideas and hindering the development of critical thinking skills. Addressing these barriers and promoting effective communication strategies is crucial to fostering a conducive and supportive learning environment that encourages active participation and enhances students' learning experiences (Kosar et al., 2020).

Students' background characteristics, such as gender and fields of study, can influence the communication barriers they experience in open and distance learning. For instance, Aljaraideh and Al Bataineh (2019) suggested that female students faced more communication barriers during the online learning process, while Ajmal and Ahmad (2019) mentioned that male students experienced higher levels of anxiety to participate during class discussions. Additionally, students from different academic fields may encounter unique communication challenges based on the nature of their courses and the specific demands of their field. For example, the online learning environment posed a significant challenge to students in STEM, particularly engineering. According to Jacques et al. (2020) as cited in Baltà-Salvador et al. (2021), it is a field where a significant portion of the curriculum revolves around implementation of information practically and heavily relies on in-person practical and laboratory classes, which differs from other academic fields such as social sciences and business. By understanding how these factors impact communication barriers, instructors can tailor their communication approaches to better support students from diverse backgrounds, promoting inclusivity and ensuring that all students have equal opportunities to excel in their online learning journey.

Communication in open and distance learning

When the country introduced a nationwide lockdown in early 2020 due to the pandemic, all educational institutions were closed and resorted to delivering lectures through online platforms such as Zoom and Google Meet. This shift from the traditional learning process affects communication as virtual communication differs from face-to-face communication. According to Alawamleh et al., (2020), online learning refers to the process of accessing educational experiences through the utilisation of specific technologies, rather than engaging in face-to-face learning where instructors and students convene simultaneously in a physical class-

room. Online learning offers many advantages for learners, including greater flexibility and accessibility, allowing students to learn at their preferred pace and from any location (Dumford & Miller 2018). Moreover, online learning can be a more cost-effective option compared to traditional in-person classes, and it allows for a wider range of educational options, including access to classes and programs that may not be available locally.

Challenges in open and distance learning

Despite its convenience in terms of accessibility and cost-effectiveness, online learning comes with great challenges that disrupt effective communication between instructors and students, as well as their learning process. Musingafi et al., (2015) investigated individual, instructional, and institutional challenges in ODL. In terms of individual challenges, the results showed that the major challenge in ODL is the lack of personal interaction and support, which often makes students feel isolated and disconnected from their peers and instructors. Furthermore, instructional challenges faced by students in ODL programs include having difficulty receiving timely feedback and guidance from instructors, which can further hinder their progress (Musingafi et al., 2015). In the institutional aspect, ODL also poses challenges related to the accessibility and quality of educational materials. According to Sadeghi (2019), students in ODL have difficulty accessing high-quality educational materials and resources, especially those from disadvantaged backgrounds. As online learning fully relies on technological devices, the use of electronic media is therefore essential for ODL learners. ODL learners also struggle with the technical aspects of online learning, including navigating the learning management systems and other online tools (Rahiem, 2020).

Types of communication barriers in open and distance learning

Based on previous research, communication barriers can be broadly categorised into four distinct categories: physical barriers, technical barriers, psychological barriers, and sociocultural barriers.

Table 1: Types of communication barriers identified in ODL and the definition (Anjum et al., 2020).

Type of communication barrier	Definition
Physical barrier	Any obstacle that prevents the effective exchange of information due to a physical or geographic distance limitation.
Technical barrier	Difficulties in utilizing technology or equipment, such as internet connectivity issues or lack of access to devices.
Psychological barrier	Internal factors that can impede communication, such as anxiety or self-esteem issues.

Sociocultural barrier	Differences in language, customs, or values among students with other students or instructors.

Physical barriers can be caused by geographical distance among students, as well as between lecturers and students. Online classes might have been a good option for some, but the lack of interaction with peers, lecturers, or both proved a communication barrier for some students (Bolliger & Halupa, 2018). Most of the time in open and distance education, instructors and students are far apart. Therefore, this huge geographical distance lowers student engagement during interactions in classes due to low motivation and feelings of isolation without their instructors and peers present around them. Students may experience isolation due to their lack of physical presence and proximity to one another, which lowers their motivation and interest in conversations and interactions, as mentioned in a study by Mendador et al. (2022). In addition to the distance being a physical communication barrier in ODL, the environment is another component of physical communication barriers that might affect students in open and distance learning. Duţă (2015) revealed that 38.33% of students in his study reported noise and physical discomfort as physical barriers during an online learning setting. He discussed that students find it difficult to focus on their studies when they cannot find a quiet, private location to participate in online coursework or finish projects. Lower grades and a decreased knowledge of the course material may result from this. Additionally, long periods of sitting and using a computer can cause physical exhaustion and discomfort in students, which can have a detrimental impact on their focus and attention in class (Duţă, 2015). This can lead to students missing critical information, lowering their engagement in online discussions, and generally lowering their motivation to participate in the learning process.

Technical barriers are attributed to differences in access to technological capabilities, internet connectivity and individual aptitude toward the use of technological devices (Marcial et al., 2015). Students may have problems with their devices used for online learning, whether they are not compatible with online learning programs or they need to share devices with other family members if they are staying at home. Other than that, access to the internet is one of the greatest technical barriers to communication during ODL according to a study by Rahiem (2020). In his research, the findings include reports by students who had either poor internet connectivity or no internet access at all in their residential area. As a result of the abrupt shift to online learning after having experienced only traditional methods of learning, students struggled with their technological skills. In the same study by Rahiem (2020), the students also mentioned that they had never used many of the applications and programs available for online learning before. They discussed the online learning platforms and features and highlighted how some instructors' limited experience with information and communication technology (ICT) posed significant challenges or caused delays in the learning

process. Some students struggled to navigate the required programmes because they lacked the necessary ICT skills.

Psychological barriers refer to students' subjective perceptions and feelings while communicating with others. These barriers occur as a result of individual variations in human behavior and mentality. According to Jureddi & Brahmaiah (2016), stress, anxiety, anger, and low self-esteem are some significant aspects of psychological communication barriers. It is well known that certain people are unable to cope with stress of any kind, just as they are unable to control their emotions in social situations. Experiencing strong emotions, such as anxiety, can distort conversations and prevent speakers from exchanging ideas successfully. Psychological barriers can significantly hinder students' communication in an open and distance learning (ODL) setting. In another study by Kosar et al. (2020), it was stated that these obstacles may make students feel alone and cut off from the learning community, which can make it difficult for them to contribute to conversations and work effectively with their peers and teachers. Additionally, this is supported by Jureddi & Brahmaiah (2016) that discussed how low self-esteem, a fear of rejection, or humiliation may make it difficult for pupils to ask questions or ask for assistance. Therefore, psychological communication obstacles may have a detrimental effect on students' engagement and motivation, which may have an impact on their learning outcomes. A welcoming online learning environment that encourages students' sense of belonging and offers an opportunity for meaningful engagement is necessary to overcome these obstacles.

Diverse cultural backgrounds among online learners can also create obstacles to effective communication. Sometimes, lecturers represent their own cultural perspectives while interacting with students from different cultures and using different languages (Hebebci et al., 2020). This is because they define content based on their ideas, values, faith, religion, language, and local customs. If both lecturers and students do not have some cultural context information during these kinds of interactions, miscommunications may happen and create barriers in students' learning process. Voevoda (2020) investigated how these factors impacted students' participation and performance in the classroom. Students who focus on one task at a time may prefer structured and sequential learning which results in frustration and disengagement in a flexible online learning environment. On the other hand, students who prefer to handle multiple tasks and interactions simultaneously may thrive in a fast-paced learning environment, hence their high engagement in class discussions. Communication barriers can also be caused by language and linguistic ability. A message's terminology may act as a barrier even when speaking the same language if the listener does not fully comprehend it (Jureddi & Brahmaiah, 2016). For instance, A sentence that includes a lot of jargon and acronyms will be difficult for a student to grasp if they are not familiar with the terminology used by the lecturers. In a similar study regarding language differences in the online learning environment, Pal et al. (2016) suggested that educators must understand the nature of language and dialect differences among their learners. In this way,

they could strategise ways to tailor their communication style and lesson materials to reach the students' level of understanding.

Effects of communication barriers on students' learning process

Communication barriers can have a significant impact on the learning process of students in online learning environments. Because there is no face-to-face interaction during online learning, it may be more challenging for students to seek clarification or assistance when necessary (Abu Bakar et al., 2020). This is particularly challenging for students who may struggle with language or cultural differences, as they may feel less comfortable asking for help in an online environment. Furthermore, communication barriers can lead to a lack of collaboration and teamwork among students (Musingafi et al., 2015), which can negatively impact their ability to learn in a group setting. This can make it harder for students to share ideas, brainstorm, and build on each other's learning. The impact of communication barriers on students' learning process is multifaceted, as it also impacts students' sense of belongingness and community. Research has found that students who perceive higher barriers in communication tend to experience a lower sense of belongingness and community in the online learning environment (Kosar et al., 2020). This can result in students feeling disinterested and unmotivated, which can additionally hinder their ability to learn effectively. In the same study, it was mentioned that frustration is another factor that affects how well students learn as a result of communication barriers. This is supported by Anjum el at. (2020) who discussed how online communication issues can frustrate students and make it more difficult for them to participate in the learning process. This may result in a lack of interest and participation and a decreased chance of academic success.

The current study

This research aimed to investigate the communication barriers faced by students at Universiti Teknologi MARA (UiTM) in ODL during the COVID-19 pandemic and determine the extent to which their learning process was affected by the communication barriers. This is to understand how communication barriers can impact students' ability to engage in their studies, understand the material, and achieve their educational goals. It also aimed to investigate how communication barriers can affect students' learning process. Another objective of this research was to investigate the influence of gender and field of study on communication barriers faced by UiTM students in ODL during the COVID-19 pandemic. This objective aimed to understand whether certain groups of students may be more likely to face communication barriers and how these barriers may vary across different fields of study.

Problem Statement

Studying communication, particularly in the educational sector, is essential as it has the potential to improve student learning outcomes and foster a supportive learning environment through effective interaction between instructors and students. Open and distance learning, however, has been proven to come with great challenges that hinder effective communication between instructors and students. According to Selvaraj (2021), the COVID-19 pandemic made effective communication even more critical in online learning because the sudden shift to virtual classrooms created new difficulties for both students and teachers. Students had to quickly adapt to online platforms and tools, which might have been confusing for some. The pandemic's stress and uncertainty could also affect students' motivation and engagement, making communication barriers more pronounced (Selvaraj, 2021).

Many studies have been conducted on communication barriers in open and distance learning (ODL) and challenges in online learning in general. For example, a study conducted by Marcial et al. (2015) found that students faced major challenges in terms of social interaction during online learning which leads to severe feelings of isolation. This lack of social engagement can be attributed to ineffective communication both among students with peers and between instructors and their students. As a result, students' motivation to learn and participate in online courses is hampered and their academic achievement is badly affected, which is supported by similar research by Alawamleh et al. (2020). Another study by Anjum et al. (2020) examined the communication obstacles encountered by Jordanian students in distance education. They also explored the impact of these barriers on the students' academic performance. The authors also discussed factors that lead to these communication barriers such as physical separation, technology incompetency, lack of subject knowledge and limited internet accessibility. During ODL, the physical separation among students led to feelings of isolation, and many found it challenging to communicate effectively with tutors using online platforms due to poor technology competency, resulting in an increased dropout rate (Anjum et al., 2020).

However, there is a lack of research focusing on communication barriers among Malaysian students in open and distance learning (ODL). Given the diverse cultural and environmental differences across countries, students worldwide may encounter communication barriers in ODL differently. Moreover, despite the existing studies on communication barriers in ODL, little evidence indicates a significant relationship between students' background characteristics, such as gender and academic fields, and the communication barriers they face. It is crucial to explore how these barriers may differ based on gender and field of study. Understanding these variations can guide instructors in tailoring communication approaches to better support students in their learning process.

Investigating communication barriers in ODL offers valuable insights to enhance online education. By identifying and addressing these barriers, we can create a more supportive and engaging learning envi-

ronment, ultimately leading to improved academic performance for students. Therefore, this study aims to fill the research gap on communication barriers among Malaysian students in ODL and suggest strategies for educational institutions to overcome these barriers, ensuring a seamless and effective learning process. The results of this study may also be useful for educational policymakers in Malaysia and abroad. Understanding barriers to communication helps guide the development of comprehensive policies that support both students and educators as they work to build and implement successful online learning programs, as well as foster a conducive online learning atmosphere for students from diverse backgrounds and academic goals.

Methodology

This research study implemented a quantitative research method. 94 UiTM undergraduate students from three fields of study, namely social science and humanities, science and technology, and business and administration were selected as the sample for this study through a simple random sampling method. The instrument used in data collection was a survey questionnaire with 6 sections which are demographic background, physical barriers, technical barriers, psychological barriers, sociocultural barriers and effects of communication barriers. The questionnaire was adapted from Isman and Dabaj (2004) for existing scales to explore communication barriers in ODL. Additional questionnaire items were then incorporated to enhance their alignment with current circumstances. These were refined through expert review and discussions with the supervisor for validity and accuracy. The questionnaire was designed using Google Forms and was shared online via social media platforms for 2 months to increase the accessibility to potential respondents. The participant count was regularly monitored until the closing date, then the data collected via Google Forms was exported to Excel for analysis. The statistical analysis software that was used for this research is the IBM SPSS Statistics ver. 28. An independent sample t-test and a one-way ANOVA were used.

Findings

Demographic background

From 94 participants, 59 individuals were female, while 35 participants were male. The majority, with a total of 54 participants, were within the 21 to 23 age range. 21 participants were between 24 to 26 of age and 19 participants were between the ages of 18 and 20. No participants are aged 27 or above. 38 participants are from the social sciences and humanities field, 34 participants are from the science and technology field and 22 participants are from the business and administration field.

Types of communication barriers faced by students

Table 2: Mean scores for each type of communication barriers

Type of communication barrier	Mean Score	Std. Deviation
Physical	3.07	.50
Technical	2.97	.81
Psychological	3.60	.58
Sociocultural	3.06	.70

Table 2 displays the mean scores for different types of communication barriers. Psychological communication barriers had the highest mean score of 3.60, indicating their significant impact. Physical barriers followed with a mean score of 3.07, slightly higher than sociocultural barriers at 3.06. The type of communication barrier with the lowest mean score was technical barriers at 2.97. This suggests that students experience the most challenges in terms of psychological barriers, followed by physical and sociocultural barriers, while technical barriers pose comparatively fewer obstacles.

Effects of communication barriers

Table 3: Mean scores of each item for effects of communication barriers

Item	Mean Score
1. I feel isolated from my peers	3.15
2. I feel unmotivated to engage in the learning process	3.40
3. I have difficulties understanding the course materials	3.36
4. I experience a lack of feedback or support from instructors	3.64
5. I find it hard to complete assignments within the given deadline	3.05
6. I had limited opportunities to participate actively in group work discussions	3.26
7. I experience difficulties building a sense of belonging with my peers	3.39
8. I feel frustrated due to online communication difficulties	3.94
9. I feel that the learning experience is not personalized enough	3.74
10. I experience a deterioration in my academic performance due to online mode of learning	3.21

Table 3 shows the mean scores for the effects of communication barriers. All the statements scored a mean score higher than 3, which means that all students experienced the negative effects of communication barriers in ODL. The statement with the highest score, 3.94, is "I feel frustrated due to online communication dif-

ficulties.". On the other hand, the item with the lowest score of 3.05 is "I find it hard to complete assignments within the given deadline.".

Other notable effects of communication barriers in ODL include the items “I feel that the learning experience is not personalised enough.” and “I experience a lack of feedback or support from instructors.” with the mean score of 3.74 and 3.64, respectively. Moreover, the statement “I feel unmotivated to engage in the learning process.” received a mean score of 3.40, while the statement “I have difficulties understanding the course materials.” has a mean score of 3.36. Additionally, the item “I had limited opportunities to participate actively in group work discussions.” scored a mean score of 3.26. Also, the item “I experience difficulties building a sense of belonging with my peers.” has a mean score of 3.39, which is notably high. Lastly, the statements “I experience a deterioration in my academic performance due to online mode of learning.” and “I feel isolated from my peers.” both received low mean scores of 3.21 and 3.15 respectively.

These findings indicate that communication barriers have a significant impact on students, particularly in their frustration with online communication. Meeting assignment deadlines, however, seems to be a comparatively less challenging aspect affected by these barriers.

Influence of gender on communication barriers

Table 4: Mean scores and standard deviation for gender and communication barriers

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Physical	Male	35	3.0429	.60696	.10260
	Female	59	3.0797	.43620	.05679
Technical	Male	35	3.0286	.80753	.13650
	Female	59	2.9322	.80973	.10542
Psychological	Male	35	3.6286	.62099	.10497
	Female	59	3.5763	.56609	.07370
Sociocultural	Male	35	3.1257	.63354	.10709
	Female	59	3.0136	.73355	.09550
Effect	Male	35	3.4971	.62048	.10488
	Female	59	3.3661	.70579	.09189

Table 5: Independent Sample T-Test results for gender and communication barriers

					Significance				95% Confidence Interval of the Difference	
	F	Sig.	t	df	One-sided p	Two-sided p	Mean difference	Std. Error Difference	Lower	Upper
Physical	2.809	.097	-.341	92	.367	.734	-.03680	.10797	-.25124	.17764
Technical	.147	.702	.558	92	.289	.578	-.09637	.17529	-.24641	.43914
Psychological	.037	.847	.418	92	.339	.677	.05230	.12524	-.19643	.30103
Sociocultural	2.596	.111	.753	92	.227	.453	.11215	.14898	-.18373	.40804
Effect	1.276	.262	.909	92	.183	.366	.13104	.14413	-.15520	.41729

Physical communication barriers

There was no significant mean difference for physical communication barriers between male (M=3.04, SD= 0.60) and female (M=3.08, SD= 0.44), t(92)= -0.341, p > 0.05. It can be concluded that both genders experience physical communication barriers with equal levels of intensity.

Technical communication barriers

There was no significant mean difference for technical communication barriers between male (M=3.03, SD= 0.81) and female (M=2.93, SD= 0.81), t(92)= 0.558, p > 0.05. It can be concluded that both genders experience technical communication barriers with equal levels of intensity.

Psychological communication barriers

There was no significant mean difference for psychological communication barriers between male (M=3.63, SD= 0.62) and female (M=3.58, SD= 0.57), t(92)= 0.418, p > 0.05. It can be concluded that both genders experience psychological communication barriers with equal levels of intensity.

Sociocultural communication barriers

There was no significant mean difference for sociocultural communication barriers between male (M=3.13, SD= 0.63) and female (M=3.01, SD= 0.73), t(92)= 0.753, p > 0.05. It can be concluded that both genders experience sociocultural communication barriers with equal levels of intensity.

Effects of communication barriers

There was no significant mean difference for effects of communication barriers between male (M=3.50, SD= 0.62) and female (M=3.37, SD= 0.71), t(92)= 0.909, p > 0.05. It can be concluded that both genders experience the effects of communication barriers with equal levels of intensity.

Influence of fields of study on communication barriers

Table 6: One-way ANOVA results for fields of study and communication barriers

		Sum of squares	df	Mean Square	F	Sig.
Physical	Between Groups	.878	2	.429	1.759	.178
	Within Groups	22.713	91	.250		
	Total	23.591	93			
Technical	Between Groups	1.712	2	.856	1.327	.270
	Within Groups	58.692	91	.645		
	Total	60.404	93			
Psychological	Between Groups	1.493	2	.747	2.245	.112
	Within Groups	30.265	91	.333		
	Total	31.758	93			
Sociocultural	Between Groups	.010	2	.005	.010	.990
	Within Groups	45.122	91	.496		
	Total	45.132	93			
Effect	Between Groups	.336	2	.168	.364	.696
	Within Groups	42.0.23	91	.462		
	Total	42.359	93			

Physical communication barriers

There were no statistically significant mean differences between groups for physical communication barriers as determined by one-way ANOVA (F(2,91) = 1.759, p = .178). It can be concluded that respondents from all three fields of study experience physical communication barriers with equal levels of intensity.

Technical communication barriers

There were no statistically significant mean differences between groups for technical communication barriers as determined by one-way ANOVA ($F(2,91) = 1.327$, $p = .270$). It can be concluded that respondents from all three fields of study experience technical communication barriers with equal levels of intensity.

Psychological communication barriers

There were no statistically significant mean differences between groups for psychological communication barriers as determined by one-way ANOVA ($F(2,91) = 2.245$, $p = .112$). It can be concluded that respondents from all three fields of study experience psychological communication barriers with equal levels of intensity.

Sociocultural communication barriers

There were no statistically significant mean differences between groups for sociocultural communication barriers as determined by one-way ANOVA ($F(2,91) = 0.010$, $p = .990$). It can be concluded that respondents from all three fields of study experience sociocultural communication barriers with equal levels of intensity.

Effects of communication barriers

There were no statistically significant mean differences between groups for effects of communication barriers as determined by one-way ANOVA ($F(2,91) = 0.364$, $p = .696$). It can be concluded that respondents from all three fields of study experience the effects of communication barriers with equal levels of intensity.

Discussion

For the first category, students were found struggling with physical communication barriers in terms of bodily strains due to long periods of sitting and using a computer the most, while they did not experience geographical aspects of physical barriers such as time zone differences. Since the respondents in this study were UiTM students residing in Malaysia, there were no time zone differences between them and their lecturers or peers during the open and distance learning session. In terms of bodily strains, students experienced physical health problems such as fatigue and discomfort. This is in line with a study by Dutta and Smita (2020) who reported that Bangladeshi students felt weakness and fatigue due to changes of daily routines due to the pandemic. They also mentioned these physical problems as the cause of their disengagement from their academic education and lack of enthusiasm for continuing their studies at home, which affected the study process. Another research by Octaberlina and Muslimin (2020) also supported the findings of this study, as they

acknowledged that the physical barrier is one of the biggest barriers in e-learning. Extended use of electronic devices also resulted in physical strain, leading to eye strain and discomfort, which in turn affected the students' focus and concentration during the learning process (Octaberlina & Muslimin, 2020). Additionally, a large number of UiTM students also reported the long distance between them and their peers and lecturers as the second most common physical communication barrier in ODL. According to Dutta and Smita (2020) who supported this finding, almost all of the participants admitted that the lack of physical contact made conversations with their friends uninteresting, which later disrupted their motivation to study.

For technical communication barriers, UiTM students rated connectivity issues during online classes as the most common barrier. This finding suggests that they frequently experienced disruptions during their online learning sessions which adversely affected their ability to actively participate and engage in the learning process. Research by Selvaraj et al. (2021) supported this finding, as they revealed that 76% of the participants attributed occasional disruptions in their online learning to problems related to network connectivity. This is particularly relevant for students residing in rural areas, where issues of inadequate network coverage are more commonly experienced. This finding also aligns with a study by Mahyoob (2020) by highlighting that internet connectivity problems received the highest scores among all the statistical measures. The study attributed these challenges to the fact that many students live in remote towns where the network infrastructure faced increased pressure due to the transition of students, teachers, and various other sectors to online platforms during this period (Mahyoob, 2020). On the other hand, limited knowledge or experience with technology is found to be the least common technical communication barrier in this research. This finding is consistent with a study conducted by Fauzi and Asri (2020) in an Indonesian university, which revealed that only 5% of the participants reported limited information technology (IT) literacy as a barrier to the learning process. However, this finding contradicts with the results of a study by Musingafi et al. (2015) that investigated challenges in ODL among students in Zimbabwe. Their study reported that 55% of the respondents were computer illiterate and lacked experience in the application of technology in general. It can be inferred that Malaysian students, particularly in UiTM, face fewer challenges when using information and communication technologies compared to students in less developed countries like Zimbabwe.

Among all four types of communication barriers explored in this research, psychological barriers are found to be the most prevalent, in the aspect of feeling overwhelmed with a heavy workload. This suggests that UiTM students commonly experience stress, anxiety, or a sense of being overloaded with their academic responsibilities. According to a study by Baticulon et al. (2021), 86% of the students stated that they have struggled with their mental health in a certain way. They expressed their feelings of stress, exhaustion, loneliness, longing for home, grief, and hopelessness. The students were concerned about future plans for medical school, online examinations, and potential training delays which made it difficult for them to focus on

their studies. Also, it should be noted that increased time spent at home did not necessarily result in more time for academic work (Baticulon et al., 2021). Some students faced additional responsibilities, such as familial and work commitments, which led them to be overwhelmed to cope with online assignments. Irawan et al. (2020) supported this finding by highlighting that students faced emotional disturbances due to excessive workload. Some participants perceived the learning patterns as inadequate and assumed that lecturers are not wise in determining effective learning patterns. In their study, Irawan et al. (2020) recommended that students experiencing emotional distress should seek social support from friends as a means to alleviate anxiety. However, the findings in this research indicate that UiTM students receive sufficient mental and emotional support from their friends. This is evident as they rated a lack of support from classmates as the least common psychological communication barrier in the context of open and distance learning (ODL).

From the findings, the most common sociocultural communication barrier is difficulties to express thoughts clearly during class discussions. In addition to anxiety, language barriers also hinder UiTM students from communicating effectively, especially when English is the language of instruction. Some students are not fluent in English, which makes it challenging for them to speak and convey their intended meaning. Adanlawo et al. (2021) support this finding by emphasising the importance of literacy and linguistic ability in effective communication. Students with a strong vocabulary and linguistic skills can communicate with others who have lower abilities, but those with limited vocabulary may struggle to communicate with advanced language skills. In the current study, it can be inferred that UiTM students with limited language proficiency face difficulties in selecting appropriate words to construct their sentences when communicating with lecturers. Interestingly, students rated difficulties in understanding accents and dialects used by classmates as the least common barrier. This suggests that cultural and dialect differences are not significant issues at UiTM, as it primarily consists of local and indigenous students. This differs from findings in other studies that examined intercultural communication in ODL. For instance, Voevoda (2020) reported that when students from various nationalities and cultures with Russian as the instructional language interact, communication becomes complicated as it involves deciphering Russian phrases into their respective native languages and then into the target language.

The mean scores for all aspects of the effects of communication barriers in ODL on students' learning process were above 3, indicating that UiTM students experienced various impacts. Among them, frustration with online communication difficulties scored the highest. This is due to the significant physical distance between students, instructors, and peers, which made them rely only on online communication for academic assignments and personal interactions. This finding is consistent with the research conducted by Irawan et al. (2020), which revealed that 60.4% of the participants expressed dissatisfaction with the lack of interaction during online classes. According to Irawan et al. (2020), using digital devices for communication lacks the richness of non-verbal cues found in face-to-face interactions. The absence of these interactions,

combined with limited opportunities for physical gatherings, intensifies students' feelings of boredom and frustration. In contrast, the effect with the lowest mean score is the inability to complete assignments within the given deadline, indicating that fewer students experience this negative impact of communication barriers in open and distance learning (ODL). This finding is consistent with the findings of Adnan and Anwar (2020), who reported that most students have effective time management skills and do not encounter significant difficulties with individual assignments. However, the study revealed that 42.9% of respondents encountered challenges when it came to group assignments due to the absence of face-to-face discussions. This difficulty in group assignments can be attributed to the previously mentioned issue of online communication difficulties, which hinder effective collaboration among students. These findings align with the effects of communication barriers in ODL mentioned in the literature review, as supported by Anjum et al. (2020). Their study highlighted the prevalence of frustration stemming from online communication issues, which subsequently led to a lack of interest and participation, ultimately reducing the likelihood of academic success.

Based on the results of the independent samples t-test, it was found that gender does not have an influence on the intensity of communication barriers faced by UiTM students in ODL. Both male and female students experience these barriers to an equal extent. Some existing studies suggested differences in communication difficulties between genders in ODL, such as Aljaraideh and Al Bataineh (2019) indicating greater barriers for female students and Ajmal and Ahmad (2019) indicating higher anxiety for male students. However, this current research aligns with the findings of Tang et al. (2021) who also found that male and female students perceive the challenges of online learning equally and exhibit similar levels of motivation to participate in online classes. The Covid-19 outbreak, which necessitated a shift to live online learning, compelled both male and female students to actively engage in online learning, thus eliminating gender differences in the perception of communication difficulties in ODL (Tang et al.,2021).

Similarly, the absence of a correlation between fields of study and communication barriers in ODL was observed. The results of the one-way ANOVA test indicated that all fields of study in UiTM namely Social Sciences and Humanities, Science and Technology and Business and Administration experienced the various aspects of communication barriers in ODL and their effects on the learning process to the same extent. The lack of existing studies exploring the influence of fields of study on communication barriers in ODL suggests that digital communication tools and platforms present similar challenges for students across different fields. While some factors such as coursework, learning objectives, and instructional strategies may influence communication barriers, the overall impact of these barriers are likely to be consistent among students from various fields.

Conclusion

The success of online education relies on students' comfort with instructional designs, their level of interaction with instructors and peers, and their general experience with minimal communication barriers. This research contributes to our understanding of communication barriers in ODL and emphasises the importance of addressing these barriers to create an effective online learning environment for all students. Psychological barriers, such as feeling overwhelmed with a heavy workload, were found to be the most prevalent, followed by physical, sociocultural, and technical barriers. Frustration with online learning difficulties, as found to be the most prevalent impact of ODL by this study, translates into poor learning outcomes and academic performance. Thus, awareness needs to be increased focusing on minimising communication barriers in online mode of learning. Importantly, the study revealed that gender and fields of study did not significantly influence the intensity of these barriers, indicating that they are not specific to a particular gender or academic discipline. The implications of this research highlight the need for institutions to prioritise student well-being in terms of mental health support. Creating an engaged and supportive online learning community, fostering meaningful interactions, and providing personalised support services are crucial in addressing these barriers in order to enhance the quality of online learning experiences.

Recommendations for future studies

Future studies on communication barriers in online learning can be conducted in other universities in Malaysia aside from UiTM to provide a broader perspective by including a diverse range of sample population, such as students at different education levels and from various nationalities and races. Other than that, future studies can focus on increasing the sample size to enhance the accuracy of findings. A larger sample would allow for a more precise investigation of the impact of communication barriers and the potential influence of genders and fields of study on the communication barriers. Additionally, exploring the topic of communication barriers using alternate research methods, such as qualitative or mixed-method approaches, can provide a deeper understanding of the topic by capturing personal experiences and specific details of these barriers.

Author contributions

Conceptualisation, N.E.A; methodology and research design, N.E.A.; validation, N.N.D.; data collection and compilation, N.E.A.; data analysis, N.E.A.; writing—original draft preparation and editing, N.E.A.; review, N.N.D.; supervision, N.N.D.; project administration, N.N.D. All authors have read and agreed to the published version of the manuscript.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

Data availability statement

The data that support the findings of this study are available from the corresponding author, N. E. A.., upon reasonable request.

Conflicts of interest

No potential conflicts of interest have been reported by the authors with regard to the research, writing, or publication of this paper.

Acknowledgement

The author would like to thank the research supervisor for the valuable guidance and feedback, and the participants for their time and input.

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