



Synchronous Communication in Post-pandemic Era for Higher Education

S. Maartandan Suppiah¹(✉), Mohd Khairie Ahmad¹, Azelin Aziz¹,
and Mohd Amirul Fauzi²

¹ Universiti Utara Malaysia, Kedah, Malaysia
s.maartandan.suppiah@uum.edu.my

² Ritz Carlton Langkawi, Kedah, Malaysia

Abstract. The COVID-19 pandemic has rendered nearly every aspect of society incapacitated. However, the advancement of communication technology has given rise to a substitute that can ensure the continuation of numerous industries, particularly education. Synchronous communication tools like Webex, Zoom, Microsoft Teams, Google Meet and others have made it possible for students and teachers to communicate as if they were in-person class interaction. This paper present and discuss the potential and challenges of synchronous communication to be adapted in post COVID-19 era of higher learning institution. This was done using an in-depth interview method with 13 informants who were students at higher education institutions. The data was transcribed and analysed using thematic analysis. While adaptation of synchronous communication in teaching and learning potentially materialised hybrid classes or alternative delivery, yet various challenges were found need to be addressed.

Keywords: Hybrid class · Cyber communication · COVID-19 · University

1 Introduction

The use of information and communication technology (ICT) is growing in various sector including in education. It is because of modernisation process as well as the current learning and teaching environment. For example, education remote distances are increasingly being used and they are also starting to be operated virtually with assistance ICT. ICT has provided a platform to facilitate communication processes such as delivery of teaching and learning, information transmission and also facilitate online student's assessment process. In COVID-19 epidemic, digital communication has played a major role in ensuring the survival of education sector. In March 2020, to contain the spread of CoVid-19, the Malaysia government has imposed Movement Control Order. Almost all sectors including higher education was affected and shifted from physically oriented (face-to-face teaching and learning) to ICT-based. Therefore, this paper explores the impact of digital-based communication on the process and results of online education in Malaysia during the COVID-19 epidemic.

2 Problem Statement

Video conference technology is one of the innovations that has been applied in the interaction process of organization at an early stage. Based on its benefits and certain innovations, synchronous teaching and learning mode has been implemented in the sector education especially at the higher education level. In Malaysia, the Malaysian Education Development Plan (Higher Education) 2015-2025 explains that this phenomenon is not new but has been in motion since 2011 through the National e-Learning Policy. In fact, more than 75 percent of Higher Education Institutions (HEIs) are reported to have a learning platform to facilitate the teaching and learning process. However, due to the outbreak of COVID-19, all teaching and learning processes have been switch to electronic and digital almost entirely. One of the teaching delivery applications which replaces conventional (face-to-face) communication is the use of video conferencing or synchronous communication which has changed the learning environment with some limitations. ICT infrastructure preparation as well as environmental problems are believed to have an impact against this new communication phenomenon [1, 2]. The question is, what is the form of acceptance and the potential of synchronous interaction on learning online among students in higher learning institutions?

3 Literature Review

With the spread of COVID-19 and the implementation of MCO, face-to-face learning in physical lecture halls has been replaced by the use of video conferencing as an alternative communication channel for connecting lecturers and students. According to Halili, students will usually experience culture shock to adapt to the use of technology, such as online. Students will feel nervous, difficult to engage, and they will also be passive with the use of technology in learning [3]. According to Archibald, students will usually face problems with internet connection, device used, audio and video quality during synchronous practice and these situations will cause disruption of learning communication [4].

An online user will face pressure when faced with technical related problems during synchronous communication. A high level of satisfaction with technology will influence practice the use by a student. Huang et al. study related students' acceptance of the use of virtual reality technology (VR) and video conferencing learning [5]. They used quantitative method involving university students in studying students' acceptance of learning using VR and video conferencing. The study found that the facilities available in VR and video conferencing have a positive impact on teaching and learning process of students. In another study by Fatani [6] related the quality of learning using video conferencing throughout the COVID-19 pandemic, various challenges identified. The results of the study found that 82% of students were very satisfied with the use video conference in the course conducted but it is very challenging and lecture's motivation for student to participate in the teaching and learning process play an important role. Past researchers found that lecturers influence students' satisfaction towards the use of video conferencing through their ability of lecturers in providing effective learning methods, encouraging students to make learning with critical thinking, and receiving feedback from students.

Meanwhile, Roth [7] in their study related to performance learning and satisfaction with learning using video conferencing as synchronous communication indicates a negative relationship. The results of their study showed students who using video conferencing get lower test grades and display negative satisfaction towards learning. From the highlights of some previous studies abroad regarding synchronous communication, it was found that the results varied. Lean back media richness theory and technology acceptance model (TAM), this study tries to explain perception and impact of synchronous communication on the communication process and results of higher education.

4 Research Design

This research uses qualitative method, specifically in-depth interview which is consistent with the urge of Creswell who indicated that qualitative method is suitable to get insight into a phenomenon [8]. Using purposive sampling 13 first degree students in HEIs around Penang, Kedah and Perlis were selected for data collection consistent with the suggestion by Patton [9]. Based on the recommendation of Castillo-Montoya [10], in order to ensure the reliability and validity of the interview protocol developed, the researcher of the current study adopted the interview protocol refinement (IPR) framework which to develop and fine-tune the interview protocol. The interview protocol of the study focuses on patterns and the impact of synchronous communication. Interview recordings using the Google Meet application are transcribed and analysed to identify themes related to the pattern and impact of synchronous communication. Thematic analysis was conducted through NVivo software guided by Strauss and Corbin [11]. The main themes and sub-themes related to the two research focuses are formed and reported.

5 Findings

Figure 1 shows the theme of satisfaction after using video conferencing and two sub-themes namely satisfied and dissatisfied. Each sub-theme has a small sub-theme or factor for the informants to be satisfied or dissatisfied in using video conferencing.

The first sub-theme is the results obtained from informants who stated that they were satisfied in using video conferencing. There are five small sub-themes under this sub-theme which are factors that influence informants' satisfaction towards the use of video conferencing. Among those sub-themes are new alternatives, health and safety, convenient and useful, communication channels, and good quality. The first factor obtained from the informant is a new alternative.

Here are some views of informants regarding this new alternative: "As students, we need to accept the new norm, learning through video conferencing or online." (Informant 6) "This video conference initiative allows students to study as usual with lecturers online." (Informant 7).

The second factor is health and safety, there are five informants provide their view that they are satisfied with the use of video conferencing due to health and safety factors. The informants focused on the epidemic facing the country, COVID-19 and were satisfied with the online learning process. Here are some views from informants related to the matter: "I am satisfied with the use of video conferencing, considering that to avoid

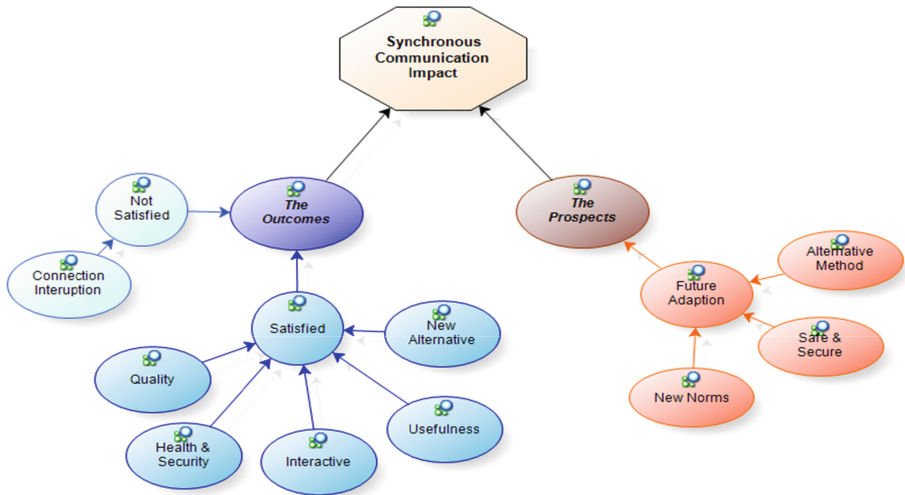


Fig. 1. Synchronous Communication impact

infection and maintain SOP, online learning is the best method” (Informant 1). “For safety and health factors I am satisfied with the application video conferencing” (Informant 2). Consistently, informant 3 said, “Video conferencing is a current necessity in terms of health and safety throughout the pandemic”. “I am very satisfied, because we know now that there is a big crisis that is hitting the country, we cannot afford to avoid the epidemic” (Informant 7). “Safety and health. The video conference gives me the opportunity to interact with friends without having to meet physically face to face.” (Informant 8).

The third factor obtained from the informant is that this video conference is easy and useful, so it forms satisfaction for an informant. There are six informants who have the same opinion, where convenience obtained from using video conferencing provides satisfaction in using video conferencing. Here is the informant’s view on the matter: “I feel satisfied because the use of this video conference is not difficult, it is easy to use with help such as sharing content and so on.” (Informant 2). “The uses of this video conference are various, we can learn to use it for meetings, and maybe we can use it for industrial training later.” (Informant 3). “I am satisfied because I can access the class anywhere, and this video conference makes it easy for me, this video conference application is easy to use, with help such as sharing content and so on.” (Informant 5). “This video conference helps us to learn more closely how to use technology. The software in the video conference application is also very helpful, for example we can share the screen, can run presentations, can also run meetings and so on.” (Informant 6). “Video conference is easy to use. With video conferencing, various aids are available and it is easy to handle.” (Informant 7). “I am satisfied because video conference application provides good help in helping my learning process throughout the semester” (Informant 8). In addition, there are informants who think that they are satisfied due to the function of this video conference as a channel to communicate. These things lead to positive satisfaction with the use of video conferencing. Here is the view from the informant regarding the matter: “I am satisfied because video conferencing is a main channel in

PdP replacing face-to-face communication throughout the learning process” (Informant 8).

The fifth factor is the good quality of video conferencing, there are informants who are satisfied with the use of conferencing video due to the quality found in video conferencing applications. This quality-related satisfaction includes the quality of audio, visuals, and facilities provided. Here is the informant’s view on the matter: “I am also satisfied with the quality of the video conference, clear audio, clear video, and learning can be carried out well with the help of share screen” (Informant 3)

Figure 1 also shows the theme of availability using video conferencing in the future and a sub-theme that is interested. The results of the study show that all informants are interested in using video conferencing in the future. There are several sub-themes that are factors that support informants interested in using video conferencing in the future. The first sub-theme that emerged was that the use of video conferencing was considered a new norm. According to informants, video conferencing has become a new norm in learning, due to security factors and it has become a habit for informants. Here are some views of the informants regarding the factor: “I am ready because we have been used to using video conferencing for a year, so it becomes no problem whether to conduct it face-to-face or online” (Informant 2). “I am interested and ready to use video conferencing considering it has become a habit to use video conferencing” (Informant 4). “I am ready to use video conferencing, we cannot refuse, it has become the new norm, to reduce physical meetings” (Informant 8).

The second sub-theme is that informants are ready to use video conferencing in future as it may be used during industrial training. There are two informants expressing their views on the issue: “Yes, I am interested and ready to continue, because we can not only enter through the link, but we can learn to use it for meetings, and maybe we can use it for industrial training later” (Informant 3). “I am interested because there is a need to be used again in the future for example industrial training” (Informant 4). The third sub-theme is related to health and safety. There are informants expressing views related to the use of video conferencing in the future due to video conferencing in the future, this is due to several factors including that it has become the new norm, useful for industrial training, health and safety, as well as a new alternative in learning.

Figure 2 shows the research findings related to the challenges faced by students when using video conferencing and solutions to overcome those challenges. The results of the study show that there are two themes presented by the informant in explaining the research question. The two themes consist of challenge that informants face when using video conferencing and the solution by informants to overcome the challenges.

Among the challenges faced by informants are environmental challenges, technical challenges, virtual interaction challenges, and self-commitment challenges. The first sub-theme is environmental challenges. According to informants, environmental challenge consists of interference from family members, weather, and natural disasters. The following is an informant’s view of the environmental challenges faced when using video conferencing:

“Time constraints because of classes and we are at home and study online, I have problems in adapting to studying from home, the situation at home and on campus are different” (Informant 1)

“The weather also plays a role, usually after 1 P.M. I will have problems with internet network at my place” (Informant 3)

“The second is noise interference from the home environment (housing area), so it causes interference during class” (Informant 4)

“I face problems when there is weather interference, when it rains it will give some interference to the internet” (Informant 6)

“My focus on conferencing is being interrupted by family members, such as noise interference and also the atmosphere in the house itself, which I consider as interference in using video conferencing” (Informant 7)

“I also will face problems if there are weather disturbances, I also have problems with the environment where I am involved with floods.” (Informant 8)

Next is the technical challenge. Figure 2 shows the majority of informants facing the same challenges. This technical challenge is a challenge related to the internet network, and all the problems encountered with video conference applications.

The following is the view of the informants regarding the challenge: “I am facing interruptions in terms of the internet, as we know many people have problems with the internet during online meetings” (Informant 1)

“We can look at the internet network itself first. Because I use my own hotspot for internet, there are days when the signal is good and there are days when it is not. There is a power outage. My laptop battery is weak, so it’s annoying and I have to do the video conferencing through my smartphone, then, interruptions such as students not turning off the mic and video so it interferes learning process, it’s also one of the interruptions when I am using a video conference” (Informant 2)

“Challenges faced during my online learning, the most is internet access, specifically poor internet access” (Informant 4)

“Often the video will be stucked, the voice will be less heard and even when speaking is not clear, I also have problems with the internet. In the video conference, I have problems with the internet connection to enter the class” (Informant 5)

“Usually the problem is the internet is not strong when using the video conference” (Informant 6)

“First of all is the internet, when I’m at home I can’t connect to online class, if it rains the internet will be slow, there is a time limit on the video conference that gives a little interruption where the time is only limited to 30 min.” (Informant 7)

The third sub-theme is related to the challenge of virtual interaction. There was one informant who had problems interacting virtually using video conferencing.

Informant 2 said, he faces difficulties in communicating with other people because we are not sure whether the person is in front of the laptop or vice versa. This matter was found to be a challenge to informant 2 in communicating through video conference.

The fourth sub-theme is related to self-commitment. There are four informants stating that they have self-commitment and consider it as a challenge in using video conference in the learning process. The following is their view on the matter: “I also have to take care of my sister, so there is a time constraint, I have to go here and there. So, it bothers me during class” (Informant 1)

Figure 2 also shows related themes and sub themes for solutions to over the challenges of online learning. The solution is related to the efforts by informants in overcoming the

challenges faced when using video conferencing. The results of the study found that there are four sub-themes which are stable access, data quota level, access via smartphone and returning to campus. The first sub-theme which is stable access, there are four informants giving their views on overcoming challenges using video conferencing. In this sub-theme, informants focus on getting a strong internet network (which area to join video conference).

The following is the view of the informants related to the matter: “I will look for an area with strong internet, I go out to the library near the house to get stronger access” (Informant 4).

“I will also look for a place or area that has strong internet in the area of my home” (Informant 5). “I will look for a place where there is strong internet like outside the house for example.” (Informant 6). “I also try to look for a place with a strong internet speed,” (Informant 8).

The second sub-theme is related to the level of data quota, the results of the study obtained from informants who increase the use of data quota in using video conference, various methods are used by to ensure internet data in good condition. Here is the informant’s view on the matter: “I switched to post-paid to get a faster internet signal” (Informant 1). “Initiative to buy more data, spend a certain amount of money to buy data” (Informant 3). “I will also subscribe to an internet package that provides good service in my home area” (Informant 6). “To overcome internet problems, I try to buy the fastest internet data to make it easier for me.” (Informant 7). “For internet problems I tried to buy a stronger Wi-Fi network from a telco company” (Informant 8).

The third sub-theme is access via smart phone as a solution for the informant in overcoming the challenge of using video conferencing. The use of smartphones is one of the alternatives to replace laptops to conduct video conferences, this is because smartphones also allow informants to download video conference application, and allows informants

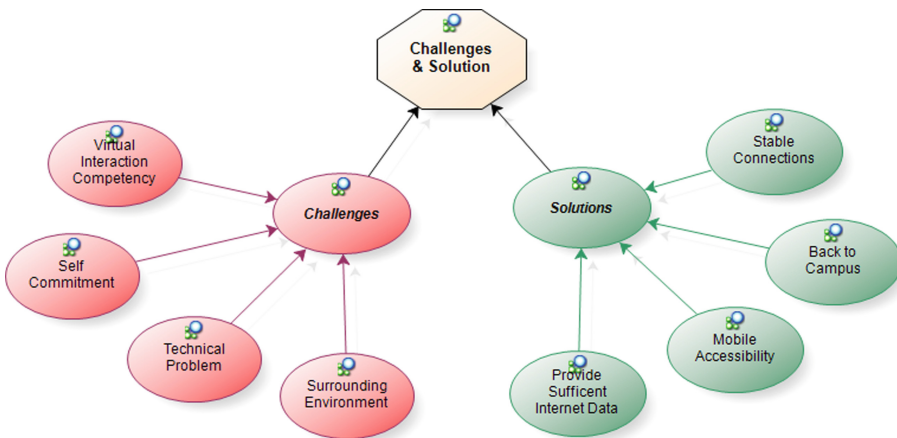


Fig. 2. Challenges and Solutions

to conference via smartphone only. Here is the informant's view regarding this alternative: "If my laptop is slow, or the internet is slow, I use a smartphone to access the video conference because it is faster" (Informant 3).

The fourth sub-theme is return to campus. There were four informants who said they returned to campus to overcome challenges when using video conferencing.

The results of the study showed that informants returned to campus to get stronger internet access and avoid environmental disturbances at home. The following is the view of the informant regarding the issue:

"I decided to return to UUM to overcome the internet problem, and I also returned due to the need to carry out practical counselling at HEP." (Informant 1). "I took the alternative of going back to UUM to overcome the problems I faced while conducting T&L at home" (Informant 5, 7, and 8). Overall, the challenge in using video conferencing is considered to be a problem faced by informant while using video conference. Challenges faced by informants can interfere with understanding of learning. In addition, challenges and solutions are two related themes where when an informant encounters any problem while using video conferencing, they make sure to find alternatives to ensure comfort during the meeting.

Through this study, the researcher identified some of the challenges faced by the students in using video conferencing. There are four challenges faced in using video conferencing, firstly is the environmental challenge, the second is the technical challenge, the third is the virtual interaction challenge, and the fourth is the self-commitment challenge. The first challenge faced when using video conferencing is the environment. It covers the difference between learning on campus and at home including comfort, acceptance and understanding. In addition, there are also weather disturbances and it causes problems for students in using video conferencing. The findings of this study can be associated with the findings by Shahmoradi and Changizi [12] who say that weather disturbances are among the disturbances faced by students that affect the use of the internet while using e-learning applications. The second challenge is a technical challenge. Challenges that are often received by students when using this video conference are internet problems, voice quality problems, and issues while entering class. The findings of technical related challenges were obtained from the majority of informants, this shows that technical challenges are a major challenge in using video conferencing. The findings of this study can be associated to the findings of few studies which states that among the technical problems identified is the loss of the internet network, where it can put pressure on users [13, 14]. In addition, there is a problem with tuning such as a microphone where it will affect the quality of the sound produced. Clearly this challenge is synonymous with the use of video conferencing. The third challenge is, virtual interaction. This challenge is related to the challenge of communicating with friends. This is because users do not know the existence of other users when they are not using the camera or audio. This challenge can be linked to the findings of a study by Gillies [15] related to student engagement. He stated that there are students who do not participate actively during the session by giving various reasons, including voice quality, internet problems. This matter gives problems to the communication process between the two parties. The fourth challenge is a challenge related to self-commitment. Challenges of self-commitment faced by students include interference from family members, and the

need to do other tasks while in session. This is due to many students conducting learning using video conferencing from their homes. The findings of this study are in line with the results of the Koceski and Koceska [16] study which states that learning online off campus or from home, students will face challenges from home, specifically interference from family. Disruption faced by students is related to their commitment to family.

Through this study, the researcher was able to identify the satisfaction of students when using video conferencing. The findings of the study found that students were satisfied with using video conferencing throughout the pandemic. Among the factors they are satisfied with is that video conferencing is considered a new alternative in learning and communication. The satisfaction of using this video conference is contributed by the video conference alternative in being a channel to replace face-to-face learning and giving results to student learning performance. From a communication point of view, this video conference becomes an important channel in replacing face-to-face learning. The findings of this study are in line with the results of research by Dugyu [17] who explained that students are satisfied with the use of video conferencing due to video conferencing forming a different learning environment compared to universities. He also emphasized the positive satisfaction towards the use of video conferencing due to users being able to communicate virtually, share ideas and obtain new information. Next is the positive satisfaction due to the video conference is a simple and useful application. Students find that the use of video conferencing provides them with convenience in learning, for example joining classes, getting notes and so on. The findings of this study are in line with the study by Omar [18] who stated that technology does influence positive satisfaction for a person is because they consider technology to be useful and provide them with convenience. In addition, another positive satisfaction factor is the quality of video conferencing. The findings of this study are in line with the findings of Omar [18] who said the quality of technology such as user-friendliness is able to form positive satisfaction in students. In addition, there are other factors contributing to positive satisfaction, namely health and safety. It was discovered that when learning is only conducted through video conference, and students are satisfied with the way of learning and the help of lecturers throughout the COVID-19 pandemic. However, there are research findings that show students are not satisfied with using video conferencing. It is because there are students who face problems with internet connection issues while video conferencing and it forms a negative perception towards the satisfaction of using video conferencing.

6 Conclusion

Overall, it was found that the practice of synchronous communication in the teaching and learning process generally displays positive results. Even though the COVID-19 outbreak has disrupted traditional T&L practices, synchronous communication is able to overcome these constraints. In fact, the respondents stated that the practice of synchronous communication has the potential to be applied in post COVID-19. However, in the enthusiasm of higher education institutions to apply synchronous communication, aspects such as technical or infrastructure constrains, study environment, self-discipline and students' ability to interact virtually should be given attention. Those challenges

mentioned by the students need to be highly considered and addressed by higher learning institutions before implementing online or hybrid learning. This to ensure the T&L delivery process able to adapt an effective online or virtual interaction.

If the higher education institution plans and intends to implement learning through synchronous communication, then the following should be given attention and supports. The ability of the students to connect to a reliable internet network must be guaranteed. They must also be provided with sufficient internet data and have access to a flexible or mobile learning network and platform. In conclusion, it is important to monitor and assess synchronous communication-based learning from the standpoint of the student infrastructure readiness.

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