

Exploring The Phases of Computer-Mediated Communication in Online Learning

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Abstract

Nowadays, the advent of the internet as well as the Information Communication and Technology (ICT) has greatly influenced the way knowledge is transmitted. One of them is through Computer-Mediated Communication (CMC). It is referred to as an innovative mode of communication. The purpose of this study is to explore the phases of CMC in online learning through understanding the influences of the interpersonal phase, hyper personal phase and impersonal phase. Besides, the study also examines the relationship between the different phases of engagement in an online class. This research is a quantitative descriptive study using survey methods conducted online and the sample was obtained from one of the public universities in Malaysia. The instrument of survey was divided into 4 main sections. Based on the survey conducted towards 146 students with regard to their experience in online learning, it was found that the level of interaction between learner-to-learner, learner-to-instructor as well as learner-to-content varied from medium to high. The findings on the relationship showed that there exists association between all types of engagement.

Keywords: Online learning, Computer-Mediated Communication

Introduction

Background of Study

In March 2020, COVID-19 was officially declared a global pandemic (WHO, 2020; Cucinotta & Vanelli, 2020). All sectors were impacted including education and this has led to the closure of schools and universities. Due to this, online learning has become a vital role during the crisis in disseminating knowledge via online classes (Silva & Cartwright, 2017). E-learning is

increasingly forming an integral part of course delivery and instruction, and is reshaping traditional learning worldwide. Furthermore, the inability of students and lecturers to navigate face-to-face classes as a result of the COVID-19 pandemic has greatly increased the use of technology for lecturers in evaluating students' oral presentation abilities (Zainuddin & Che' Lah, 2022).

In Malaysian perspectives, during this crisis, to control the outbreak's spread, the government had imposed a nationwide lockdown which resulted in the closure of schools and universities. Although the situation requires the students to be at home, the educators must ensure that teaching and learning activities continue. At that particular time, Online Learning has replaced the conventional face to face method to adapt the situation with online learning platforms. This alternative way of teaching has since become the main method of instruction in most of the countries throughout the world including Malaysia. Thus, in dealing with abrupt changes in technologies; methods, techniques and strategies of education had been revised after COVID-19 became a global pandemic.

One of the alternatives used worldwide is related to computer mediated communication (CMC). It is referred to as a new medium of communication which associates with high-tech media based on digital, computer, and network-connected information. Besides personal computer (PC) or laptop devices used as a medium, other devices such as smartphone, tablet and Personal Digital Assistant (PDA) are also considered as computer-based devices (Walther, 2010).

Statement of Problem

The world was unprecedented affected by the Coronavirus disease known as COVID-19. Due to this pandemic, universities across the globe were forced to go for a lockdown and closure of all campuses. Universities had to switch the learning method from face-to-face to online learning as an alternative way to continue the learning process. In fact, most of the teaching committees including lecturers and students were facing unprecedented issues, problems and challenges. Thus, Open and Distance Learning (ODL) is the way forward to overcome these issues and it is not a brand-new approach to education (Yazid & Malik, 2022).

In relation to this situation, online learning providers are becoming increasingly conscious of the diversity of current and potential learners. This is expressed by their effort of providing a range of alternatives for their online engagement. Online learning faces many challenges ranging from learners' issues, educators' issues, and content issues. Several weaknesses related to online learning were also described in the literature by (Petrides, 2002). Delay in responses is one of them. Some participants highlighted that they felt a lack of instantaneousness during the online learning session. This situation is totally contrary compared to face-to-face learning where immediacy in responses is spontaneous. This seems to be obvious in asynchronous online discussions when participants have to wait for others to read and revert back to their messages, emails or other queries.

Apart from that, other challenges are connectivity issues where not all teachers and students have access to digital devices, internet, and Wi-Fi. Such unavailability of proper digital tools, poor internet connections, or weak Wi-Fi signal can cause a lot of trouble as many students might lose out on learning opportunities. In terms of communication, E-learning has certain

weaknesses in a way that it can hamper the communication between the learner and the educator. This can be seen when direct communication and human touch are lost (Favale et al., 2020).

Not only that, a study conducted by Annamalai (2021) found that, through an online learning approach, students work alone and there is no opportunity for interaction and collaboration. Besides, students also highlighted their dissatisfaction as the learning was ineffective and they felt that the teachers were passive technology users. They were stuck at a basic level and did not attempt to use advanced or sophisticated tools (Annamalai, 2021). Furthermore, studies by Vonderwell (2003) reported that delayed feedback from the instructor is another issue of weakness in online learning. One respondent expressed that the instructor took hours or maybe a day to provide the feedback to the question that students asked. Another study carried out by Song (2004) discovered most of the respondents in this research reported that lack of community, difficulty in understanding instructional goals, and technical problems were challenges in their online learning experiences. Meanwhile, about 71% of students who were less satisfied with online learning felt that a lack of community within the online environment was a challenge in online courses. About 60% of the respondents revealed that they were having difficulty understanding the goals/objectives of the course and 50% indicated technical problems as a barrier.

Research Questions

- How does online learning influence the interpersonal phase in computer-mediated communication?
- How does online learning influence the hyper personal phase computer-mediated communication?
- How does online learning influence the impersonal phase in computer-mediated communication?
- Is there a relationship between the different phases of engagement in an online class?

Literature Review

Benefits and Drawbacks of Online Learning

Due to the advancement in internet-based technology, many universities and colleges have started investing heavily in online learning. There are many reasons for offering online learning. Among them are to improve the quality of learning, reduce costs, prepare students better for a knowledge-based society, respond to market demand, promote lifelong learning opportunities, collaborative learning across the world, and others.

Most importantly, the adoption of online learning in the education sector, especially for higher learning institutions has several benefits or advantages. Prior studies have highlighted several benefits of online learning. One of the benefits is that it is known as a flexible and effective source of teaching and learning. Based on the study findings, most of the respondents agreed that online learning helps in distance learning with its easy administration and accessibility along with fewer use of resources and time. Not only that, through online learning, students can easily access the learning material at any time, and the students also become self-directed learners, which is one of the important competencies for encouraging lifelong learning (Mukhtar et al., 2020).

Besides that, online learning could enhance the efficacy of knowledge and qualifications via ease of access to a huge amount of information, able to provide opportunities for relations between learners through discussion forums. Online learning can also provide advantages in terms of independent learning and developing new skills in the process leading to life-long learning (Dhawan, 2020).

However, there are several drawbacks seen from online learning such as the online learning can be challenging particularly to the disabled, underprivileged, and marginalised students who have limited resources and accessibility to online learning (The Regional Risk Communication and Community Engagement (RCCE) Working Group, 2020). Not only that, this inability to access and involve in online learning causes disparity and dropout among students. Also, inadequate online learning infrastructures and limited accessibility to the internet make the online learning process harder for the students. In addition, online learning requires students' commitment and discipline, especially vulnerable students who need interaction to strengthen their social skills (UNESCO IESALC, 2020).

As highlighted by Mukhtar et al (2020), the use of online learning has caused inefficiency in teaching psychomotor skills, resource intensiveness, and mismanaged decorum and lack of students' feedback regarding the understanding of the subject. Besides that, internet connectivity issues also adversely impact the online learning ability (Mukhtar et al., 2020).

Computer Mediated Communication

Computer Mediated Communication (CMC) was introduced in 1987 and extensive research on this field began to develop. CMC is referred to as an innovative mode of communication. Computer-based Communication (CBC) has become an inevitable aspect of our communication infrastructure and a lasting alternative to face-to-face conversations (Bonensteffen et al., 2022). The trend of CMC modifies the nature of human communication interactions from face-to-face meetings to computerised meetings. It is not limited to personal computer (PC) or laptop device, but all computer-based devices such as PDA, smartphone, tablet, and other digital devices. CMC began to receive overwhelming attention in many sectors especially online learning due to rapid development of information and communication technology (ICT). The concept of online learning is described by most scholars as an approach to learning experiences through technology (Benson, 2002; Carliner, 2004; Conrad, 2002).

Luppini (2007) suggests partial advantages of CMC in writing, task focused discussion, collaborative decision-making, group work, and active involvement in knowledge construction during group interactions. Furthermore, the research findings revealed performance advantages of computer-mediated versus face-to-face learning environments on numerous tasks and for the presence of gender differences in computer-mediated environments.

Online learning offers the latest version of distance learning which improves access to educational opportunities for learners (Benson, 2002; Conrad, 2002). December (1996) defines CMC in education as the process by which people create, exchange, and perceive information using networked telecommunications systems that facilitate encoding, transmitting, and decoding messages. There are a number of attributes of CMC such as

asynchronous and synchronous communication capacity, high interactivity, and multi-path communication.

Past Studies on Benefits of Online Learning

Many studies have been conducted to investigate the benefits of online learning for both students and universities (Bhuasiri et al., 2012). As highlighted by Al Rawashdeh et al (2021), prior studies have presented several benefits through the implementation of online learning particularly in the context of education. Among them, online learning has been viewed as the ability to focus on the requirements of individual learners. For example, focusing on the needs of individual learners can deliver knowledge in the digital age effectively as compared to educational institutions' needs or instructors (Huang & Chiu, 2015, as cited in Al Rawashdeh et al., 2021). Furthermore, several studies have also shown the positive effects of online learning from the learners' perspectives (Gautam & Tiwari, 2016; Martinez-Caro et al., 2015; Chang, 2016, as cited in Al Rawashdeh et al., 2021). For example, the adoption of online learning allows one to observe many flexible learning ways to go for classes with much reduced need for travel. Besides, learners are allowed to get deeper insights of the information through activities that are carried-out in the classroom through interactive video facility (Gautam & Tiwari, 2016; Martinez-Caro et al., 2015; Chang, 2016, as cited in Al Rawashdeh et al., 2021). As a result, this allows learners to respond promptly towards the activities (Al Rawashdeh et al., 2021).

A study was conducted by Al Rawashdeh et al (2021), with regard to the advantages of online learning. The study that involved 100 medical students at the university in the United Arab Emirates indicates that online learning can be a potential platform in providing a number of delivery methods for different types of learners, when compared to conventional classrooms. In fact, online learning is seen as an influential tool as it can provide a unique learning style and improve academic performances of students. Not only that, students can actively participate in an online learning environment where they can increase their thinking ability and learn independently (Dumford & Miller, 2018, as cited in (Al Rawashdeh et al., 2021). In addition, via online learning, students can have systematic lessons as it provides content and exercises portrayed in animations, sounds, and videos.

The implementation of online distance learning has become more significant and crucial due to the severity of the COVID-19 pandemic. There are many past studies on the advantages of online distance learning. A study was conducted by Fatonia (et.al) (2020) on the advantages of online learning during pandemic COVID-19. This study explored the advantages, constraints, and solutions for online learning systems by using qualitative approaches at 5 universities involving 100 students. It was found that these students experienced flexibility in online learning as they were able to listen lectures at home, not constrained to being in a closed environment i.e. lecture hall, able to listen to lectures practically at any time and any given places, and they were not limited by time or space grouped into comfortable educational themes. This study is also supported by Dumford and Miller's (2018) research on online learning in higher education for engagement. The data was collected from the National Survey of Student Engagement, and it clearly stated that those students taking greater numbers of online courses were more likely to engage in quantitative reasoning.

Past Studies on Drawbacks of Online Learning

Online learning has been the subject of many studies and this section only focuses on its limits and disadvantages. Few studies have found this type of online learning has flaws in a number of areas; time-consuming, organizational and student unreadiness, lack of technical support, team effort, inaccessibility to course materials, delayed evaluation and feedback and lack of credibility in examination.

A survey conducted by Mukhtar et al (2020) identified the limits placed on online learning during the COVID- 19 epidemic. The study was qualitative, consisting of 12 faculty members and 12 students from the University College of Medicine and the University of Dentistry, Lahore, Pakistan. Interviews were conducted through four focus groups, two from the faculty and another two from students. Data was then transcribed verbatim and analysed thematically using ATLAS. The study found that although online learning has its advantages, it was also exposed to weaknesses, including inefficiency and difficulty in maintaining academic integrity. The study also discovered that both medical lectures and students were only able to teach and evaluate the knowledge component instead of practical or clinical work. Due to the lack of immediate feedback, lectures could not assess students' understanding during their online lectures. Students also reported limited attention spans and the nature of online learning resources as limitations. Additionally, some lecturers reported that their students had attempted to access materials during the exam despite the fact that the rules forbidding such behaviour.

Next, a study by Al Rawashdeh et al (2021) examined the advantages and disadvantages of online learning from the viewpoint of medical students at a university in the United Arab Emirates. 100 students from semester two at Ajman University were randomly chosen as a sample for this descriptive study with an equal number of male and female participants. A closed structured questionnaire was constructed to collect data from the students. The study found that 73% of students reported they spend more time in front of technological tools for social contact than they do actually speaking to other people. 70% of students reported that their parents are computer illiterate, which limits their ability to monitor their students online.

Another is an unpublished master's thesis by Elayan (2021), which examines the benefits and drawbacks of online learning in higher education from the viewpoints of both students and lecturers in the Department of English at Middle East University. 86 students and 29 teachers made up the study's sample. This study revealed that the disadvantages of online learning from the student's perspective were as follows; the high cost of internet services, the inappropriateness of some specific topics to be taught via online learning and the many tasks and activities assigned to students which then caused stress among them. The downside for instructors was that online learning actually required a basic understanding of using digital learning, lacked credibility in examination and required better time management.

Conceptual Framework

Post pandemic has accelerated the norm of computer-mediated communication. While many still preferred face-to-face interactions, many have accepted the norm of learning through computer-mediated communications. According to Rahim et al (2021), how learners engage during online interactions determine how much they can gain from the communication.

Interestingly, instructors of online classes, found in some instances learners who make efforts to be heard or seen. According to Rahmat et al (2022) online learning pushes learners to be “seen”. They do make efforts to get their ideas across. Nevertheless, there are several phases of computer-mediated communication that is evident during online classes.

This study (refer to Figure 1) is rooted from Walther’s (1996) three phases of computer-mediated communication and they are (a) interpersonal, (b) hyper personal and (c) impersonal. In the context of this study, these three phases are displayed through (i) learner-to-learner interaction, (ii) learner to instructor interaction and also (iii) learner to content interaction respectively. For interpersonal interaction to be effective, learners need to communicate with their peers. Next, the interaction by the instructor can be seen as hyper personal especially during online interactions. The instructor needs to plan learning tasks so learners are motivated to interaction online. Finally, online communication can encourage impersonal communication as learners feel free to speak up compared to the face-to-face classes. So being impersonal enables the online learners to engage with the content.

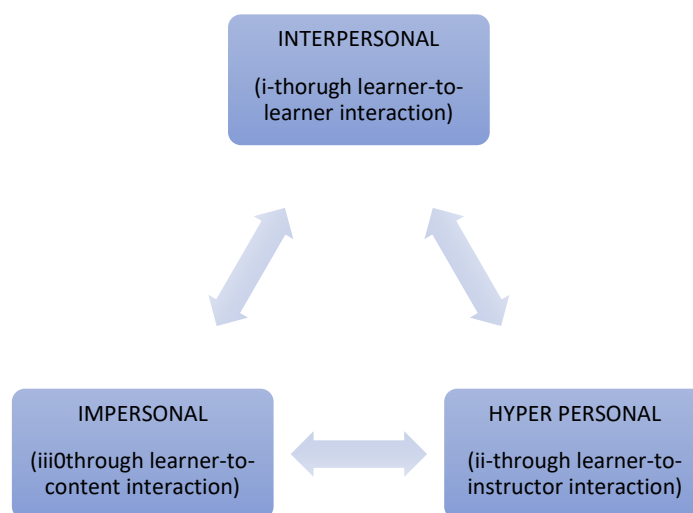


Figure 1- Conceptual Framework of the Study- Achieving the Three Phases of Computer Mediated Communication in Online Learning

Methodology

This quantitative study was conducted to investigate learners’ motivation towards learning. 146 respondents participated in this study. The 5-likert scale instrument used a survey adapted from Martin and Bolliger (2018). Table 1 shows the distribution of items in the survey. Section A is the demographic profile. Section B consists of 6 items on interpersonal (learner-to-learner), Section C consists of 7 items on hyper personal (learner-to-instructor) and Section D consists of 8 items on impersonal (learner-to-content).

Table 1

Distribution of Items in Survey

SECTION	PHASE	TYPE OF INTERACTION	NO OF ITEMS
B	INTERPERSONAL	LEARNER-TO-LEARNER	6
C	HYPER PERSONAL	LEARNER-TO-INSTRUCTOR	7
D	IMPERSONAL	LEARNER-TO-CONTENT	8
TOTAL NO. OF ITEMS			21

Table 2

*Reliability Statistics***Reliability Statistics**

Cronbach's Alpha	N of Items
.939	21

Table 2 shows the reliability statistics for the survey. SPSS analysis revealed a Cronbach Alpha value of .939 thus revealing a high reliability of the instrument used. Data was then analysed to obtain mean scores to answer all the research questions for this study.

Findings

Findings for Demographic Profile

Q1. Gender

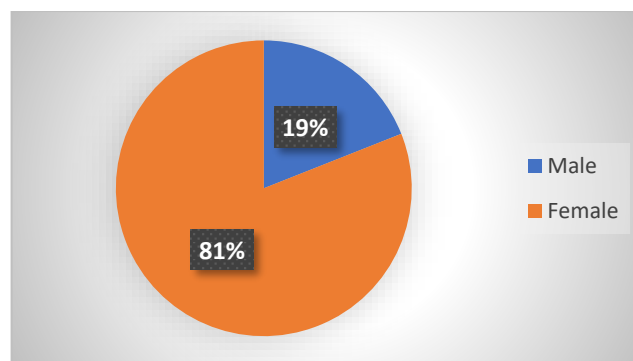


Figure 2-Percentage Distribution for Gender

As shown in Figure 2, the respondents of the study consisted of 81% female, and 19% male. Thus, this study shows that majority of the respondents are represented by female respondents.

Q2. Semester

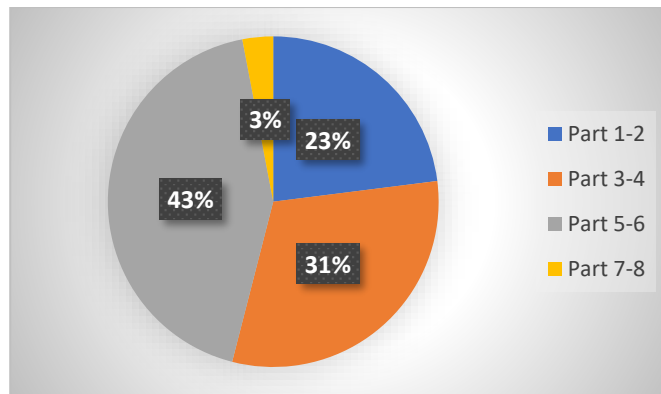


Figure 3-Percentage Distribution for Semester

Figure 3 indicates that most of the respondents were from Part 5-6 with 43%, followed by Part 3-4 with 31%, Part 1-2 with 23% and lastly part 7-8 with 3%. Thus, this study shows that most of the respondents are represented by Part 5 students whom are also the final year students.

Q3. Program

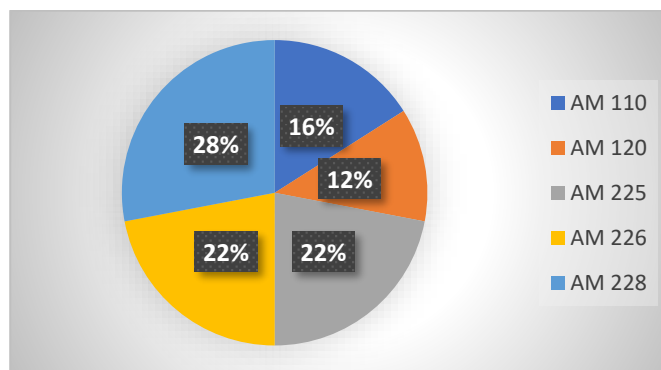


Figure 4-Percentage Distribution for Program

As shown in Figure 4, most of the respondents were from AM228 with 28%. This is followed by AM225 and AM226, both with 22%, AM110 with 16% and lastly AM120 with 12%. Thus, this study shows that most of the respondents are represented by AM228.

Q4. Learning Location

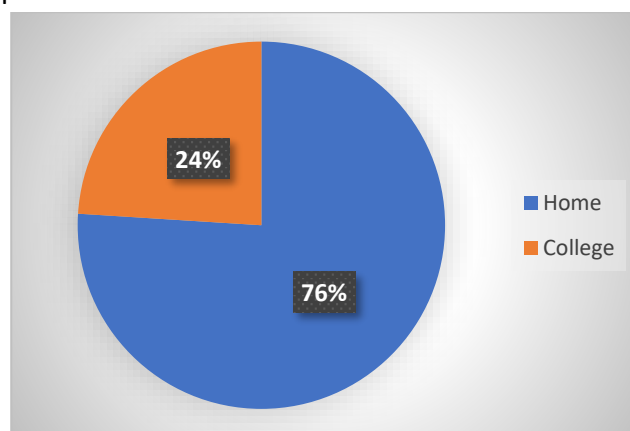


Figure 5-Percentage Distribution for Learning Location

In terms of learning location, Figure 5 indicates that most of the respondents were staying at home with 76%, and the rest with 24% of the respondents were staying at college.

Q5. Internet Access

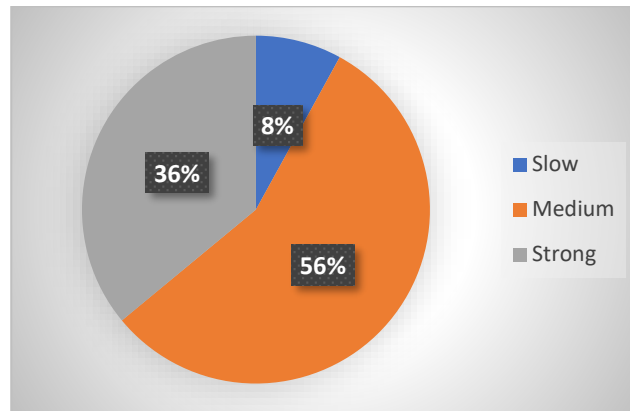


Figure 6-Percentage Distribution for Internet Access

As shown in Figure 6, in terms of internet access, most of the respondents had medium internet access with 56%, followed by 36% with strong internet access and lastly 8% with low internet access. Thus, this study concludes that most of the respondents possessed medium internet access during their online learning.

Findings for Learner-to-Learner Engagement

This section presents data to answer research question 1- How does online learning influence the interpersonal phase in computer-mediated communication? For interpersonal interaction to be effective, learners need to communicate with their peers (via learner-to-learner interaction).

Learner-To-Learner Interaction

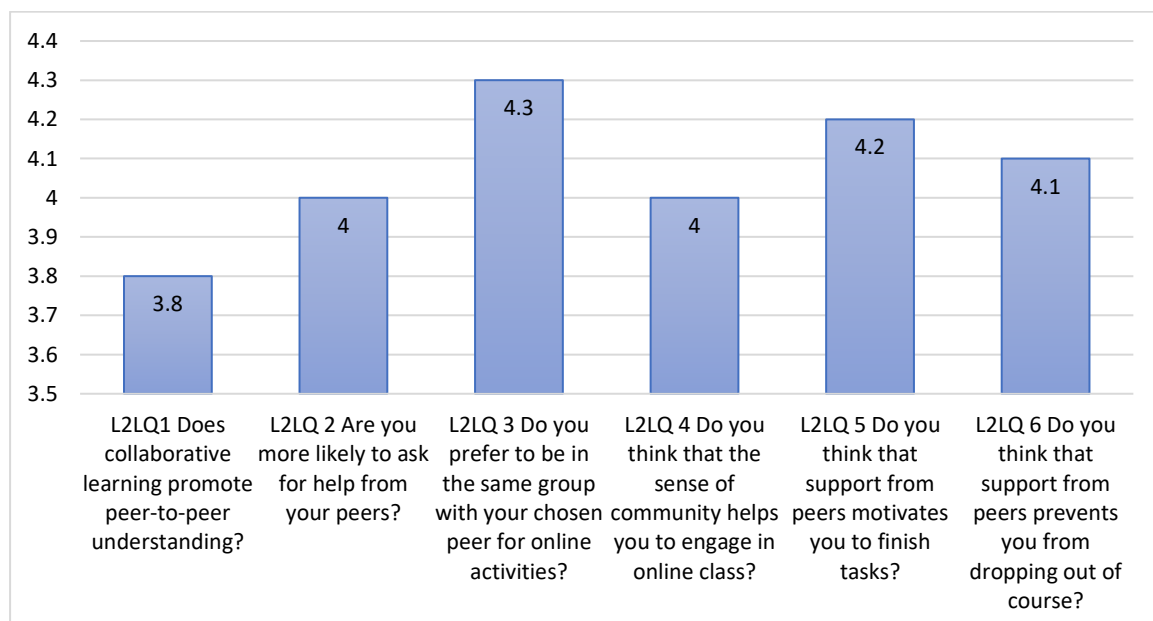


Figure 7-Mean Value for Learner-to-learner Interaction

Figure 7 shows the statistics for the mean value for the independent variable between learner-to-learner interactions. Based on the results of the mean value, the lowest mean value reported was for L2LQ1 while the other mean values revealed an average value of 4 and above. This means that the level of learner-to-learner interaction is high.

Findings for Learner-to Instructor Engagement

This section presents data to answer research question 2- How does online learning influence the hyper personal phase computer-mediated communication? The interaction by the instructor can be seen as hyper personal especially during online interactions. The instructor needs to plan learning tasks so learners are motivated to interact online. This is measured by the items in learner-to-instructor interaction.

Learner-To-Instructor Interaction

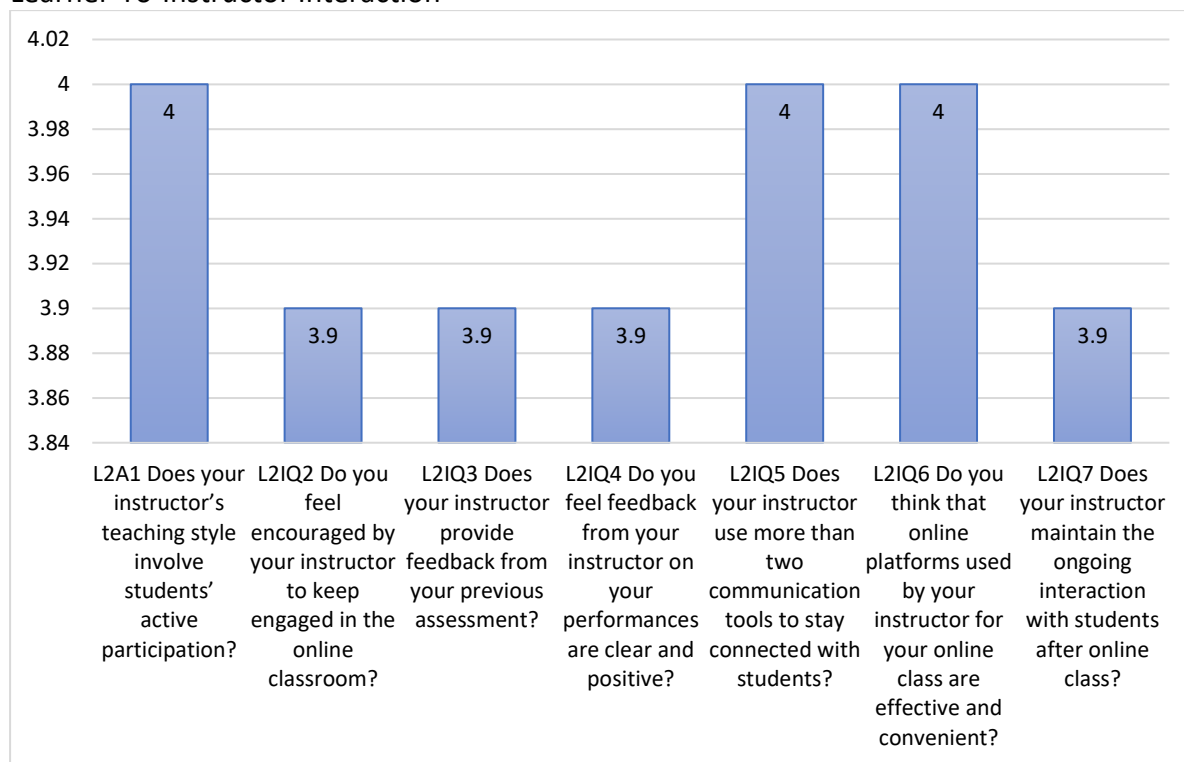


Figure 8- Mean Value for Learner-to-Instructor Interaction

Figure 8 exhibits the statistics for the mean value for the independent variable namely learner-to-instructor interaction. From the results of the mean value above, the lowest mean values for independent variable were found to be for L2I Q2, L2I Q3, L2I Q4 and L2I Q7. Whereas, the highest mean values were found to be for L2I Q1, L2I Q5 and L2I Q6. This means that the level of learner-to-instructor instruction is between medium and high.

Findings for Learner-to-Content Engagement

This section presents data to answer research question 3- How does online learning influence the impersonal phase in computer-mediated communication? Online communication can encourage impersonal communication as learners feel free to speak up compared to the face-

to-face classes. So being impersonal enables the online learners to engage with the content. This is measured by learner-to-content interaction.

Learner-To-Content Interaction

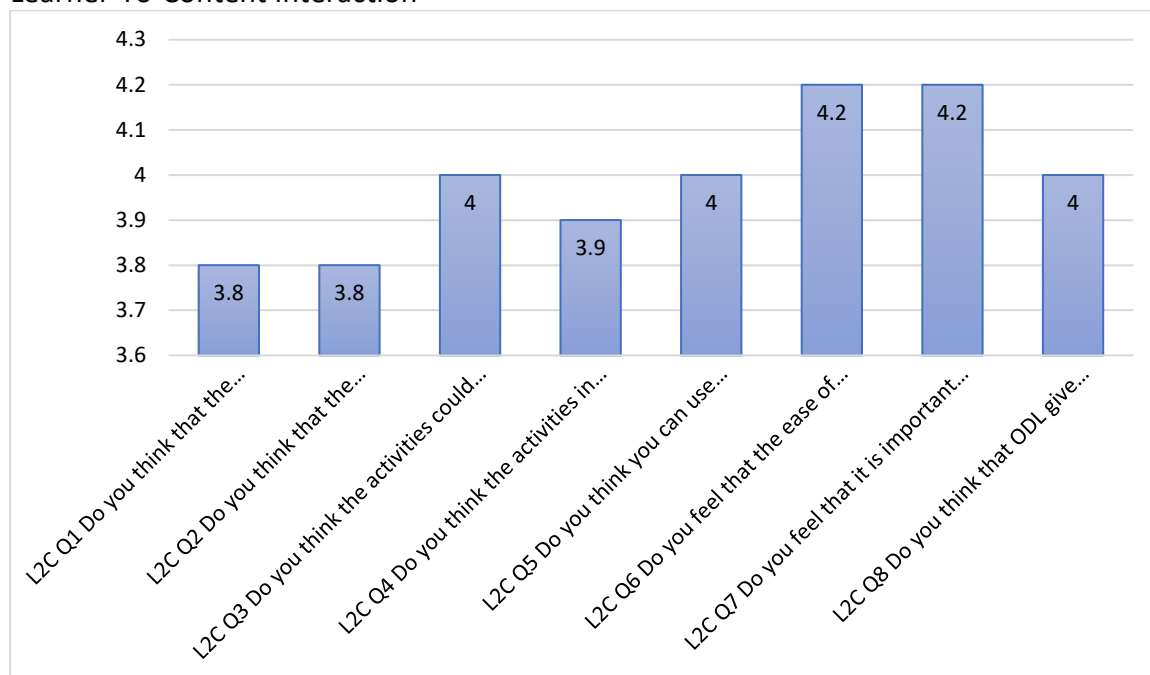


Figure 9-Mean for Learner-to-Content Interaction

Figure 9 indicates the statistics for the mean value for the independent variable namely learner-to-content interaction. As shown in Figure 9, the results shows that the lowest mean values for learner to content interaction were L2C Q1, L2C Q2 and L2C Q4, respectively. Meanwhile the highest mean values were L2C Q3, L2C Q5, and lastly L2C Q8. Based on the findings, this means that the level of learner to content interaction is between medium and high.

Findings for Relationship for All Types of Engagement

This section presents data to answer research question 4- Is there a relationship between the different phases of engagement in an online class? To determine if there is a significant association in the mean scores between fear of oral presentation and the use of communication strategies, data is analysed using SPSS for correlations. Table 3, 4 and 5 show there is association with all types of engagement.

Table 3

*Correlation between Hyper personal and Interpersonal***Correlations**

		TOTALmean HYPERPERSO NAL	TOTALInterp ersonal
TOTALmeanHYPERPERS ONAL	Pearson Correlation	1	.620**
	Sig. (2-tailed)		.000
	N	146	146
TOTALInterpersonal	Pearson Correlation	.620**	1
	Sig. (2-tailed)	.000	
	N	146	146

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 shows the correlation analysis between hyper personal and interpersonal engagement. Correlation analysis shows that there was a high positive significant association between hyper personal and interpersonal engagement with $r=.620^*$ and $p=.000$. The coefficient was significant at the .05 level and this association is therefore significant. According to Jackson (2015), positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This shows a strong positive significant relationship between hyper personal and interpersonal engagement.

Table 4

*Correlation Interpersonal & Impersonal***Correlations**

		TOTALInterp ersonal	TOTALmeanI MPERSONAL
TOTALInterpersonal	Pearson Correlation	1	.709**
	Sig. (2-tailed)		.000
	N	146	146
TOTALmeanIMPERSONA L	Pearson Correlation	.709**	1
	Sig. (2-tailed)	.000	
	N	146	146

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4 shows the correlation analysis between interpersonal and impersonal engagement. Correlations analysis shows that there was a high positive significant association between interpersonal and impersonal engagement with $r= .709^{**}$ and $p=.000$. The coefficient was significant at the .05 level and this association is therefore significant. According to Jackson (2015), positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This means that there is a strong positive significant relationship between interpersonal and impersonal engagement.

Table 5

Impersonal & Hyper personal

		TOTALmean MPERSONAL	TOTALmean HYPERPERSONAL
TOTALmeanIMPERSONAL	Pearson Correlation	1	.729**
	Sig. (2-tailed)		.000
	N	146	146
TOTALmeanHYPERPERSONAL	Pearson Correlation	.729**	1
	Sig. (2-tailed)	.000	
	N	146	146

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5 shows the correlation analysis between impersonal and hyper personal engagement. Correlations analysis shows that there was a high positive significant association between impersonal and hyper personal engagement with $r = .729^*$ and $p = .000$. The coefficient was significant at the .05 level and this association is therefore significant. According to Jackson (2015), positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This means that there is a strong positive significant relationship between impersonal and hyper personal engagement.

Conclusion

Summary of Findings and Discussion

Based on the current study, it can be summarised that different results were found towards these three sections. In the Learner-to-Learner-Interaction, the result of the mean value revealed that the lowest mean value reported was 3.8 while the other mean values revealed 4 and above, averagely. This means that the level of learner-to-learner interaction is high. This is congruent with Walther (1996), where he stated that for interpersonal interaction to be effective, learners need to communicate with their peers.

In terms of Learner-to-Instructor-Interaction, the result of the mean value reported that four out of eight independent variables in this section found to be the lowest mean values whereas another four remaining independent variables found to be in the highest mean value. This means that the level of learner-to-instructor instruction is between medium and high. The trend of computer-mediated communication (CMC) modifies the nature of human communication interactions from face-to-face meetings to computerised meetings. CMC began to receive overwhelming attention in many sectors especially online learning due to rapid development of information and communication technology (ICT). The concept of online learning is described by most scholars as an approach to learning experiences through technology (Benson, 2002; Carliner, 2004; Conrad, 2002).

Apart from that, the finding for Learner-to-Content-Interaction reported that the lowest mean value was found to be 3.8 for three out of the eight independent variables while the highest mean value was found to be for the remaining. This means that the level of learner-to-content is between medium and high. This is congruent with Dhawan (2020), where online learning provides advantages in terms of independent learning and developing new skills in the process leading to life-long learning (Dhawan, 2020). Besides, through online learning,

students can easily access the learning material at any time, and the students also become self-directed learners, which is one of the important competencies for encouraging lifelong learning (Mukhtar et al., 2020).

Pedagogical Implications and Suggestion for Future Research

The CMC has become a central subject matter of virtual classrooms in many parts of the world particularly during the COVID-19 pandemic. As a new technology is developed, the educators need to look at different ways of reaching each generation in which they need to study its use and look at how each form can be used effectively in the classroom as a communication tool. Apart from that, since the medium of communication is more towards virtual, therefore we need to consider the students' self-proficiency level.

Since this study focuses more on synchronous, other forms that could be studied such as text messaging, instant messaging, podcasts, blogs or posting to a social network need to be considered for future research. Besides, forms of asynchronous communication also need to be taken into consideration. Lastly, there are five angles: instruction, content, motivation, relationships, and mental health that an educator must keep in mind while imparting online education. Emphasis should also be given to the pedagogical and technical competency of online educators, where it is of utmost importance.

In relation to online learning, motivation can influence what we learn, how we learn, and when we choose to learn. In fact, prior studies also proved that motivated learners are more likely to be actively engaged in online learning. Most importantly, motivated online learner could directly or indirectly enhance their performance, undertake challenging activities, and display resilience in the face of difficulties. Besides, modern view also link motivation to individuals' cognitive and affective processes such as thoughts, beliefs, and goals, and emphasise the situated, interactive relationship between the learner and the learning environment.

The finding from this study could contribute to the body of knowledge and provides some insight to the relevant parties such as Online Learners, Educators and Ministry of Education to develop social intervention mechanism in order to enhance the effectiveness of online learning process. Besides, the finding from this study will help potential researchers to find out the areas that were not fully examined in the literature.

References

- Al Rawashdeh, A. Z., Mohammed, E. Y., Al Arab, A. R., Alara, M., & Al-Rawashdeh, B. (2021). Advantages and disadvantages of using e-learning in university education: Analyzing students' perspectives. *Electronic Journal of e-Learning*, 19(3), 107-117
- Annamalai, N. (2021). Online learning during COVID-19 pandemic. Are Malaysian high school students ready? *Pertanika Journal of Social Sciences and Humanities*. 29 (3), 1571-1590
- Benson, A. (2002). Using online learning to meet workforce demand: A case study of stakeholder influence. *Quarterly Review of Distance Education*, 3(4), 443-452
- Bonesteffer, F., Zebel, S., & Giebels, E. (2022). Is computer-based communication a valuable addition to victim-offender mediation? A qualitative exploration among victims, offenders and mediators. *Victims & Offenders*, 1-23

- Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education*, 58(2), 843–855. <https://doi.org/10.1016/j.compedu.2011.10.010>
- Carliner, S. (2004). *An overview of online learning* (2nd ed.). Amherst, MA: Human Resource Development Press
- Conrad, D. (2002). Deep in the hearts of learners: Insights into the nature of online community. *Journal of Distance Education*, 17(1), 1–19
- Luppigini, R. (2007). Review of computer mediated communication research for education. *Instructional science*, 35(2), 141-185
- Cucinotta, D., & Vanelli, M. (2020). WHO declares COVID-19 a pandemic. *Acta Bio Medica: AteneiParmensis*, 91(1), 157
- Dhawan, S. (2020). Online learning: a panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*. 0 (0), 1–18. <https://journals.sagepub.com/doi/full/10.1177/0047239520934018>
- Favale, T., Soro, F., Trevisan M., Drago, I., & Mellia, M. (2020). Campus traffic and e-Learning during COVID-19 pandemic. *Computer Networks*. 176, 107290. <https://www.sciencedirect.com/science/article/pii/S1389128620306046>
- Fatonia, N. A., Nurkhayatic, E., Nurdiawatid, E., Fidziahe, G. P., Adhag, S., Irawanh, A. P., & Azizik, E. (2020). *University students online learning system during Covid-19 pandemic: Advantages, constraints and solutions*. *Systematic reviews in pharmacy*, 11(7), 570-576. <https://www.sysrevpharm.org/articles/university-students-online-learning-system-during-covid19-pandemic-advantages-constraints-and-solutions.pdf>
- Jackson, S. L. (2015). *Research methods and statistics-A critical thinking approach* (5th ed.). Boston, USA: Cengage Learning.
- Martin, F., & Bolliger, D. U. (2018). Engagement matters: student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning* 22(1), 205- 222. <http://doi:10.24059/olj.v22i1.1092>
- Yazid, M. N. H., & Malik, M. (2022). Open and Distance Learning (ODL): Seeing from the eyes of English grammar instructors. *Journal of Administrative Science* 19(1), 287-304. https://jas.uitm.edu.my/images/2022_JUNE/15.pdf
- Mukhtar, K., Javed. K., Arooj. M., & Sethi, A. (2020). Advantages, limitations and recommendations for online learning during COVID-19 pandemic era. *Pakistan Journal of Medical Sciences*. 19-S27-S31. <http://doi:https://doi.org/10.12669/pjms.36.COVID19-S4.2785>
- Elayan, N. T. F. (2021). *Advantages and Disadvantages of University Online Learning from Students' and Instructors' Perspectives: A Case Study of English Language Students in Jordan* [Master's Thesis, Middle East University, Jordan]. <https://meu.edu.jo/libraryTheses/Advantages%20and%20Disadvantages%20of%20University%20Online%20Learning%20from.pdf>
- Petrides, L. A. (2002). Web-based technologies for distributed (or distance) learning: Creating learning-centered educational experiences in the higher education classroom. *International Journal of Instructional Media*. 29(1), 69 – 77
- Rahim, M. A., Zainuddin, A., Soh, M. C., Aziz, F. M. M., Sharif, N. S. I. M., & Rahmat, N. H. (2021). Exploring learning through cognitive constructivism: The case for online lessons. *International Journal of Academic Research in Business Studies and Social Sciences*, 11(12),1873-1887. <http://dx.doi.org/10.6007/IJARBS/v11-i12/11505>

- Rahmat, N. H., Sukimin, I. S., Taib, S. A., Amir, N., & Abidin, N. S. Z. (2022). Investigating cognitive presence in learning academic writing online. *International Journal of Academic Research in Business & Social Sciences*, 12 (1), 2167-2178. <http://dx.doi.org/10.6007/IJARBS/v12-i1/12191>
- Silva, M., & Cartwright, G. F. (2017). The internet as a medium for education and educational research. *Educ. Libr.*, 17:7. <http://doi:10.26443/el.v17i2.44>
- Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *The internet and higher education*, 7(1), 59-70.
- The Regional Risk Communication and Community Engagement (RCCE) Working Group. (2020). *COVID19: How to include marginalized and vulnerable people in risk communication and community engagement*. <https://reliefweb.int/report/world/covid-19-how-can-risk-communication-and-community-engagement-rcce-include-marginalized>
- UNESCO IESALC. (2020) UNESCO IESALC: COVID-19 and higher education: today and tomorrow. Impact analysis, policy responses and recommendations. Available at: <http://www.iesalc.unesco.org/en/wp-content/uploads/2020/04/COVID-19-EN-090420-2.pdf> (accessed 10 September 2020).
- UNESCO Institute. (2020) Guidance on active learning at home during educational disruption: promoting student's self-regulation skills during COVID-19 outbreak. Available at: <https://iite.unesco.org/publications/guidance-on-active-learning-at-home-during-educational-disruption/> (accessed 10 September, 2022).
- Vonderwell, S. (2003). An examination of asynchronous communication experiences and perspectives of students in an online course: A case study. *Internet and Higher Education*, 6, 77 – 90.
- Walther, J. B. (1996). "Computer-Mediated Communication". *Communication Research*. 23 (1), 3–43. <https://doi.org/10.1177/009365096023001001>
- Walther, J. B. (2010). Computer-mediated communication. In C. R. Berger, M. E. Roloff, & D. R. RoskosEwoldsen (Eds.), *Handbook of communication science* (2nd ed., pp. 489–505). Thousand Oaks: Sage
- World Health Organization. (2020). *WHO Director-General's opening remarks at the media briefing on COVID-19*. <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19—11-march-2020>
- Zainuddin, K., & Che' Lah, C. F. (2022). Students' perceptions on the implementation of recorded oral presentation. *Journal of Administrative Science*. 9(1), 233-246. https://jas.uitm.edu.my/images/2022_JUNE/12.pdf