


## EXPLORING CONNECTEDNESS IN ONLINE LEARNING



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### ABSTRACT

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Online learning is meaning the delivery of individualized, comprehensive, dynamic learning content in real-time to aid the development of communities of knowledge as well as linking learners and practitioners with experts. In Malaysia, online learning is introduced during the movement control order where, many academic institutions were closed and shifted entirely to online. Thus, the paper explores connectedness in an online learning situation within the theory of connectivism and online learning. To obtain the data, a survey was done using a questionnaire as an instrument among 367 respondents. The data were analyzed with SPSS. Findings showed that connectivity during online learning is formed through three directions namely teachers, students, and peers or friends. It is suggested teachers who perform online learning classes apply to teach pedagogy such as synchronized and asynchronous sessions using various ICT technologies to ensure the connectivity among students and teachers is similar to face-to-face learning sessions.

**Contribution/ Originality:** This paper reports the issues of connectedness when it comes to online classes. Online classes need to allow learners to connect with their teachers but also among their peers.

## 1. INTRODUCTION

### 1.1. Background of the Study

A major part of the world is in quarantine due to the serious outbreak of Covid-19. Many cities have turned into phantom cities and the effects can be seen in schools, colleges, and universities too. The virus has made institutions go from an offline mode to an online mode of pedagogy (Dhawan, 2020). When the situation worsened in the country, the government of Malaysia also applied a movement control order (MCO) to curb the infection of Covid-19 and so students from secondary schools and higher learning institutions were all studying from home. As part of the National Recovery Plan of Malaysia (NRP) 4.0, the hybrid learning method was introduced by the government. This was an approach that merged hybrid and blended learning, allowing for the delivery of education that blends online learning with the traditional in-person classroom learning in terms of time allotted, learning spaces, content design, assessment, and pedagogical strategies (John-Arul, 2021). Online learning or e-learning is defined as interactive learning in which the learning content is available online and provides automatic feedback to the student's learning activities (Paulsen, 2002). Online education is electronically supported learning that relies on the Internet for a teacher or student interaction and the distribution of class materials. According to Paulsen (2002), online education is characterized by the separation of teachers and learners which distinguishes it from face-to-face education; the

influence of an educational organization which distinguishes it from self-study and private tutoring; the use of a computer network to present or distribute some educational content and the provision of two-way communication via a computer network so that students may benefit from communication with each other, teachers, and staff.

This paper explores students' connectedness to online learning. Connectedness contributes to the successful implementation of face-to-face learning sessions. It encourages human interactions in computer-mediated learning environments allowing individuals to participate comfortably in group communication while simultaneously forming social relationships within the group (Galambos, Abelson, & Black, 1986). Due to the pandemic of Covid-19 and the closure of physical classes, online learning through the use of several devices like computers, laptops, tablets, and smartphones with internet access user data and Wi-Fi in synchronous and asynchronous methods of teaching has become the recent learning methods (Selvanathan, Hussin, & Azazi, 2020). Online learning, open learning, web-based learning, computer-mediated learning, blended learning, and hybrid learning have in common the use of a computer connected to a network, whereby students can learn anywhere and anytime (Cojocariu, Lazar, Nedeff, & Lazar, 2014). Online learning is also a tool that can make the teaching and learning process more student-centered, more innovative, and even more flexible. It includes online courses, exams, gamified quizzes, and certification training. According to Singh and Thurman (2019) online learning is a learning experience in synchronous or asynchronous methods using different devices with internet access. Within synchronous learning, students attend live lectures and real-time interactions and therefore anybody can get and give instant feedback. Asynchronous learning methods, on the other hand, are commonly facilitated by media such as e-mail, recorded videos, and discussion boards where learners and teachers can participate offline (Hrastinski, 2008).

### 1.2. Statement of the Problem and Objective

Over the years, online learning has been used by participants from various developed countries around the world to follow lessons. Then with the spread of the Covid-19 pandemic, it became a global platform to create multiple opportunities for students to attend classes as it offers a way to overcome the learning gap that arouses due to lockdown. There is no denying the fact that there are various benefits that can be gained through this type of learning. One of the benefits is a reduction of costs because it does not require a specific place to hold learning sessions. It also saves time because there is no need to move out of the home to follow lessons. Because of these benefits, online learning is increasingly common at many higher education institutions and is used in delivering learning sessions including for Islamic studies courses. Students and lecturers of Islamic studies have gained much from using the online learning application for their lessons. Even so, there are several constraints and challenges that occur during online learning and hamper the effective delivery of these lessons. There are three main challenges when conducting religious lessons: line disruption and internet access, lack of cooperation in groups, and also environmental disruption from family and neighbors. In addition to that, the study by Husin (2021) on the pattern of online teaching and learning in the undergraduate program of Arabic language studies in *Kolej Universiti Islam Selangor*, found that the main constraint to the success of this method is the long teaching time which caused decreased student concentration in learning while feeling connected is important for a student of Islamic courses. There have been many thorough studies and vigorous debates on the theories and assessments applied to the online learning environment. However, they have not focussed on connectedness in online learning especially among learners learning Islamic courses. To address this concern, the focus of the present study is to examine the diversity, autonomy, and openness as portrayed in online learning with the ultimate goal of providing the best practice for students in Islamic courses in the implementation of online learning. Generally, this study explores connectedness in online learning among learners learning Islamic courses. Specifically, this study is done to answer the following questions;

- How is diversity portrayed in online learning?
- How is autonomy portrayed in online learning?
- How is openness portrayed in online learning?

## 2. LITERATURE REVIEW

### 2.1. Online Learning Disadvantages

Online learning is a medium of learning that has become commonplace as the world struggled with the spread of Covid-19. Previously, an online teaching approach was not the main choice because face-to-face teaching is the most appropriate and effective approach. Nevertheless, the contagious effects of the Covid-19 pandemic have accelerated the online teaching process to coincide with the development of increasingly advanced information technology.

As mentioned earlier, even though presently online teaching has shown to be the preferred method of teaching, it has some negative effects. A study by Kirin et al. (2021) found that 92 respondents (76.6%) agreed that online teaching is boring and loses students' focus on learning. This stems from the lack of a two-way interaction between students and instructors. Unconducive student environment conditions such as laptop sharing and noise that occurs in the house due to siblings playing and other family members chatting as well as lack of skills in the use of information technology are also among the other factors that contribute to the lack of positive effects of online learning. A study by Siti, Suzana, and Zulkurnain (2021) related to the effectiveness of online learning and teaching e-learning on student learning in Hulu Langat Community College found that 39.8 % (91 respondents) faced technological barriers

such as constraints in terms of internet access, computer ownership, technical problems related to technology and so on. The study of [Salleh, Jamaludin, Mohd Safie, and Mohd Yusof \(2021\)](#) also proves the lack of effectiveness of online learning that needs to be taken seriously. Among the aspects that showed the lack of effectiveness were frustration and lack of interest in learning by students during the MCO 47% (n = 179), lack of direct contact with other students 61.4% (n = 223), lack of two-way communication good with instructors by 35.4% (n = 135), online learning difficulties by 64.7% (n = 246), lack of attention by instructors to students by 30% (n = 114) and possible interference from other family members during online lectures by 47.2% (n = 178). Such constraints will certainly hamper the process of online learning and teaching. As a result, teaching goals cannot be mastered by students due to the constraints that occur which eventually lead to boredom and a lack of interest in learning.

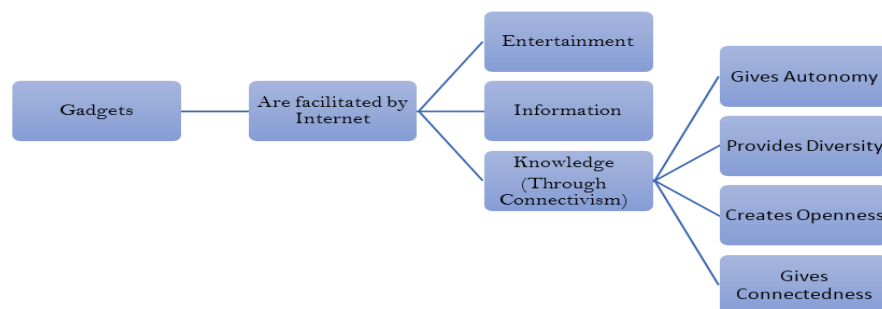
### 2.2. Online Learning Advantages

Online learning does provide advantages to those who use it. Experts say the main advantage of online learning is the ability to search documents or any research/data online. With the press of a button or the click of a mouse, users can search for documents in multiple locations. Students also can have a conversation or interview with experts in any field anytime, anywhere. The exchange of information or data can be made secretly without any disturbance and without the cost of transportation and others ([Yuhanna, Alexander, & Kachik, 2020](#)). Moreover, [SciLine \(2021\)](#) reported that online learning somehow can be advantageous to the students. whereby online learning can even be better than in-person classroom learning if it is implemented accordingly. She also stresses that the best online learning is where students learn at their own pace and at their own time and are set up to think deeply and critically about the subject. Online learning is also said to increase the flexibility of learning to achieve the goals and objectives as well as the reduction of time. In fact, online learning has become more popular among local students and international students around the world due to the pandemic nowadays. In addition, the average students with online learning conditions have more confidence and perform better than the traditional face-to-face classroom ([Hiranrithikorn, 2019](#)).

### 2.3. Connectivism

The classroom learning in the virtual world calls for the application of the theory of connectivism. Connectivism is introduced by [Siemens \(2005\)](#) and it has been offered as a new learning theory for a digital age, with four key principles for learning: autonomy, connectedness, diversity, and openness. Connectivism is a relatively new learning theory that suggests students should combine thoughts, theories, and general information in a useful manner. It accepts that technology is a major part of the learning process and that our constant connectedness gives us opportunities to make choices about our learning. There are several principles of connectedness. Firstly, learning and theory rest in the diversity of opinions. Next, learning is a process of connecting specialized information sources. In addition to that, learning may reside in non-human appliances and now learning resides in the use of technology.

Technology has changed the way we do things. The use of equipment and gadgets which were once seen as distractors to completing important tasks (especially learning) have now become the medium of information and knowledge transfer. A click on the computer or even gadgets (that have a connection to the internet) changes people from “not knowing” to “wanting to know more”. [Figure 1](#) depicts how the internet facilitates our use of gadgets in the acquisition of entertainment, information, and also knowledge. Through connectivism, knowledge (a) gives autonomy, (b) provides diversity, (c) creates openness, and also (d) gives more connectedness. Firstly, online classroom interaction gives learners the autonomy to decide what and how they want to access knowledge. Online teaching also gives instructors the autonomy to disseminate the knowledge to the learners. This is because guided participation ([Rahmat, 2018](#)) can allow learners to focus on what needs to be learned instead of spending time on the task aimlessly. Next, learning online gives learners a diversity of learning opportunities. If they require more information, all they need is “click” on their gadget and they will gain more information. In addition to that, online classroom interaction creates openness as “reluctant” learners can choose to learn /understand at their own pace. They would feel less pressured to rush their understanding. “Hiding” under the camera allows some learners the comfort of not being recognized (when the need arises). Finally, gadgets (with the help of an internet connection) allow learners more connectedness with other learners around the globe.



**Figure 1.** Connecting connectivism to online learning (adapted from Siemens (2005)).

## 2.4. Past Studies

### 2.4.1. Drawbacks of Online Learning

Past studies have shown that online learning cannot provide positive interaction among students in the learning process. [Siti. et al. \(2021\)](#) in their study discussed the effectiveness of online learning and teaching (e-learning) on the learning of Hulu Langat Community College students who found that personality barriers are a major challenge in the implementation of online teaching. Personality barriers refer to students' lack of interest in the applications used by lecturers in delivering lessons, not having their own computer so they have to share with other siblings, and no internet facilities at home. Similarly, the learning style barrier presents another concern. This refers to the comfort of students towards technology and the level of quality of online teaching materials as well as feedback from students during this online session.

According to [Yahaya and Adnan \(2021\)](#), in their study on online learning methods in Malaysian Public Institutions of Higher Learning, there are four main disadvantages of this method: the problem of access to internet facilities, high internet costs, and an uncondusive learning environment, and level low learning effectiveness. The study has identified that some students did extra work to help increase family income during the online teaching and learning sessions. This shows that the focus and concentration of students had to be divided into two: lessons and improving family finances.

In addition, a study produced by [Mailis, Hanim, and Hassan \(2020\)](#) on the implementation of online learning in the era of pandemic Covid-19 stated that lecturer feedback is among the highest challenges compared to other problems in the study. Ineffective communication during online learning sessions makes it difficult for students to digest the content of the lesson in more depth. Subsequently, students have described feeling disconnected from their peers and education institutions.

### 2.4.2. Benefits of Online Learning

In contrast, there are studies that show online learning does provide advantages for the students. [Fatoniah et al. \(2020\)](#) in their study mentioned that the most common advantage of online learning that they discovered from their study is a comfortable educational environment. From all 100 responses collected, 32.01% agreed that they can listen to their learning session at home, with no limitation of place, and they also can listen to it anytime anywhere. In addition, time utilization is also emphasized where 29.97% of the respondents agreed that online learning does save their time especially on traveling. What's more, there are also responses mentioning that online learning provides a smooth interaction where students can speak or ask questions with their teacher comfortably over the chat.

Furthermore, a study by [Firmansyah, Putri, Wicaksono, Putri, and Arif \(2021\)](#) indicates that the flexibility of time is better and material filing as well as documentation is more organized. Data were collected using questionnaires completed by 74 participants from *Universitas Negeri Malang*. Based on the data analyzed, students mentioned that the flexibility of online learning gives them opportunities to manage their study time independently. It is also stated that material provided through online learning is well documented and easy to access outside the class hour. Besides, videos of learning that were provided can be played multiple times. This shows that online learning provides students with the opportunity to independently manage their studies.

The study by [Wahid, Rahmat, Dzuradeen, and Abdul Kadir \(2020\)](#) investigates students' engagement online. The study used ([Moore, 1993](#)) interaction framework. The survey has 24 items revealing the functions of learners, teachers, and also the learning content in the online classroom. Findings showed that all three dimensions (learner, teacher, and content) play important roles in the online classroom. The study also revealed that the teaching and design strategies have important impacts on learners in online learning. It also reported that connecting with classmates, such as online group work creates opportunities for learners to interact with their peers.

### 2.4.3. Past Research on Learning Islamic/Moral Studies Online

Online learning and teaching have also become the preferred platform for conducting lessons under Islamic and Moral Studies. As the courses under these areas of studies cover both theory and practical content, topics related to monotheism, worship, Islamic law, and so on benefit greatly from the features available in online learning. While theoretical knowledge is relatively easy to convey to students online, the knowledge that needs to be demonstrated and practiced such as taking ablution performing prayers, and so on certainly proved challenging when not conducted face to face. This was as studied by [Siti and Khadijah \(2021\)](#). Even though [Abdul, Muhammad, and Narowi \(2021\)](#) in their study found that the effectiveness of online teaching and learning is high with a mean value of 3.99, most instructors prefer the face-to-face method. The instructors also agreed that online teaching and learning is a novel platform in education for many of them and thus, poses many challenges to teachers in terms of the internet accessibility, student concern in class, and teacher delivery method in helping students to understand.

Traditionally, Islamic religious knowledge is learned by students through a face-to-face approach. The approach provides an excellent opportunity for students to discuss topics or get direct answers from the instructor or teacher to any questions they have. In addition, the face-to-face atmosphere of learning religious knowledge also stimulates focus and perseverance in oneself. Apart from that, this approach allows for students and teachers to participate in communal or *jemaah* practices such as group prayers to ask for blessings in seeking knowledge. However, some of

these activities are difficult to conduct in online sessions. In fact, studies have been done on online religious studies classes and have proven that there are indeed various forms of barriers that affect the effectiveness of online learning in particular for this subject.

Among the studies is one done by Siti and Khadijah (2021) who stated that Islamic education teachers face difficulties in attracting students, especially students who are weak and less interested in learning. This situation occurs in the activity of *tasmik* (listening) for the Qur'anic recitation which is usually done face-to-face. Teachers need to listen to the students' recitation of the verses of the Qur'an and give direct guidance in terms of pronunciation or tone or to correct a reading error. Thus, the study shows that going online may not offer the best environment for students and teachers of Religious Studies to connect particularly for activities like *tasmik*. However, if there are no more options due to unavoidable constraints, then online learning sessions for the subject should be conducted with careful consideration of the requirements for an effective *tasmik*.

2.5. Conceptual Framework of the Study

Figure 2 illustrates the conceptual framework of the study. The conceptual framework of this study is derived from Siemens (2005) and online engagement by Martin and Bolliger (2018). Connectedness in online learning can be achieved through three channels. Autonomy is achieved by the learners when they participate in the learner-to-learner engagement. Next, the online activities need to be carefully planned by the teacher to let learners appreciate openness through learner-to-teacher engagement. Finally, teachers' online teaching has to ensure the learning materials use diversity.

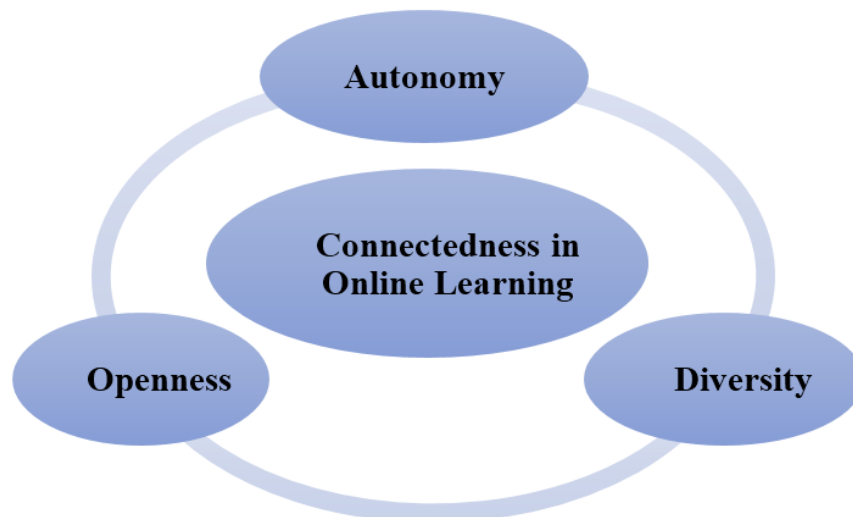


Figure 2. Conceptual framework of the study – connectedness in online learning.

Table 1. Distribution of items on survey.

| Section               | Connectedness Factor<br>Siemens (2005) | Online Engagement Constructs<br>Martin and Bolliger (2018) | Item |
|-----------------------|--|--|------|
| B                     | Diversity                              | Learner-to-learner   | 6    |
| C                     | Autonomy                               | Learner-to-teacher   | 8    |
| D                     | Openness                               | Learner-to-content   | 8    |
| Total number of items |  |  | 22   |

3. METHODOLOGY

This quantitative research is done to investigate how learners use cognitive and metacognitive strategies when they learn French as a foreign language. The instrument (refer to Table 1) used is a survey that adapts connectedness factors by Siemens (2005) and online engagement constructs by Martin and Bolliger (2018). 397 respondents were purposely chosen to answer the survey. The survey has 3 main sections. With reference to Table 1, section A has items on the demographic profile. Section B has 6 items on Diversity and section C has 8 items on Autonomy and section D has 8 items on Openness.

Table 2. Reliability statistics.

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's             | N of Items |
| 0.947                  | 22         |

Table 2 presents the reliability statistics for the instrument. SPSS analysis revealed a Cronbach alpha of .947 thus showing high internal reliability of the instrument used. Data is collected online via Google form. Data is then analyzed using SPSS version 26. Analyzed data is presented in the form of percentages and mean scores to answer the two research questions.

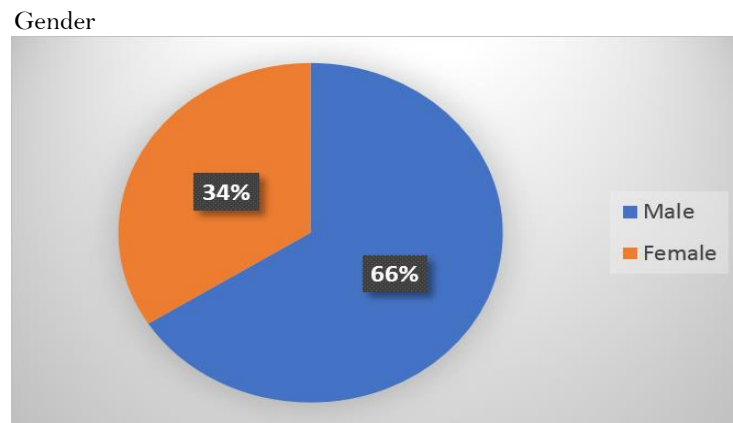


Figure 3. The percentage for gender.

#### 4. FINDINGS

##### 4.1. Findings for Demographic Profile

According to Figure 3 about gender profiles, 66% of the respondents were male students, and 34% of them were female students.

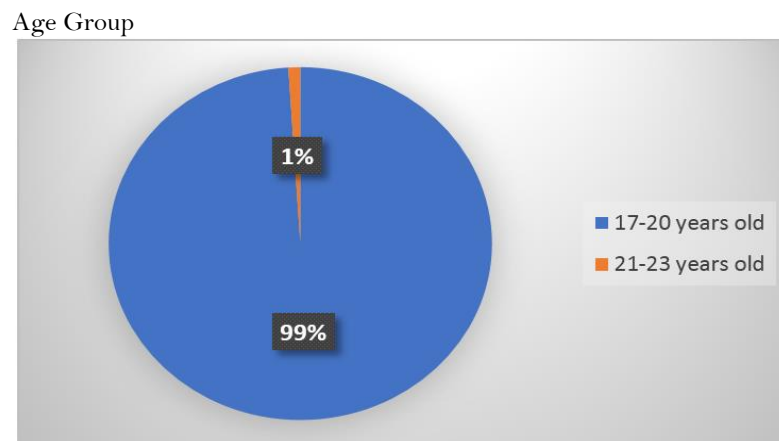


Figure 4. The percentage for the age group.

According to Figure 4, most of the respondents are students aged between 17 to 20 years old and only 1% of the respondents are between 21-and 23 years old.

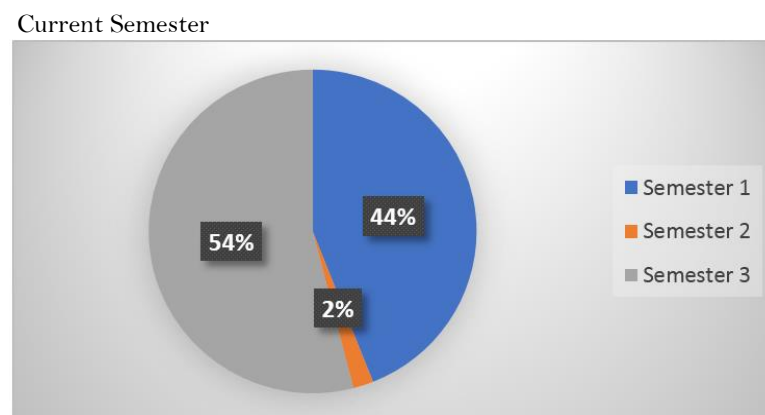


Figure 5. The percentage for the current semester.

According to Figure 5, 54% of the students who answer the questionnaire are in Semester 3, followed by students in semester 1 about 44%, and students in semester 2 about 2%.

Background of Residence

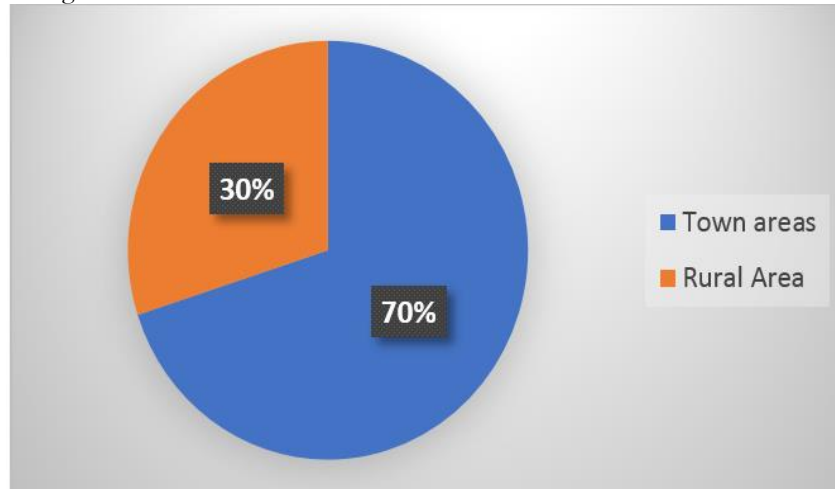


Figure 6. The percentage for the background of residence.

According to Figure 6, 70% of respondents are living in urban areas and the other 30% of them live in rural areas.

Parents' Background

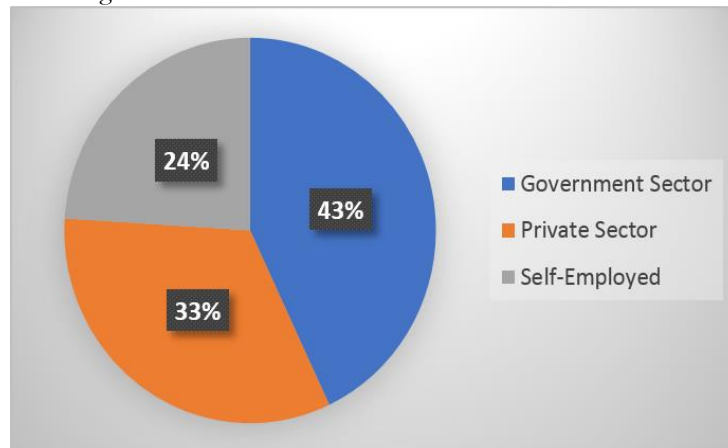


Figure 7. The percentage for parents' background.

Figure 7, shows that 43% of the respondents' parents are working in the government sector; 33%, in the private sector, and among them also are parents who are self-employed 24%.

According to Figure 8, 59% of the respondents are using WIFI data when performing their online class and 41% are using the internet with their data coverage from mobile phones.

Internet Access

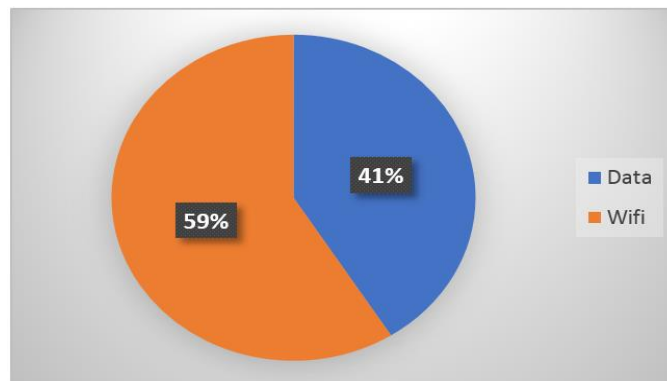


Figure 8. The percentage for internet access.

Preference for Online Study

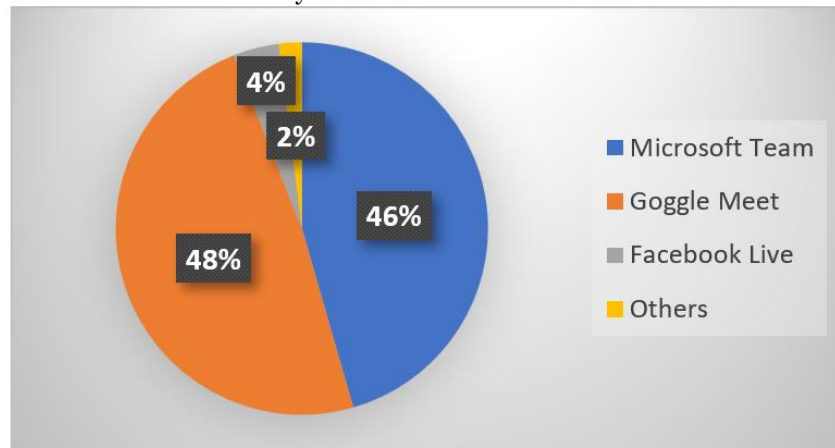


Figure 9. The percentage for preference for online study.

According to Figure 9, the students prefer using Goggle Meet the most (49%) followed by the Microsoft Teams (46%) and Facebook Live (4%) and other preferences 2%.

4.2. Findings for Diversity

This section presents data to answer research question 1: How is diversity portrayed in online learning? In the context of this study, diversity can be achieved through learner-to-learner interactions.

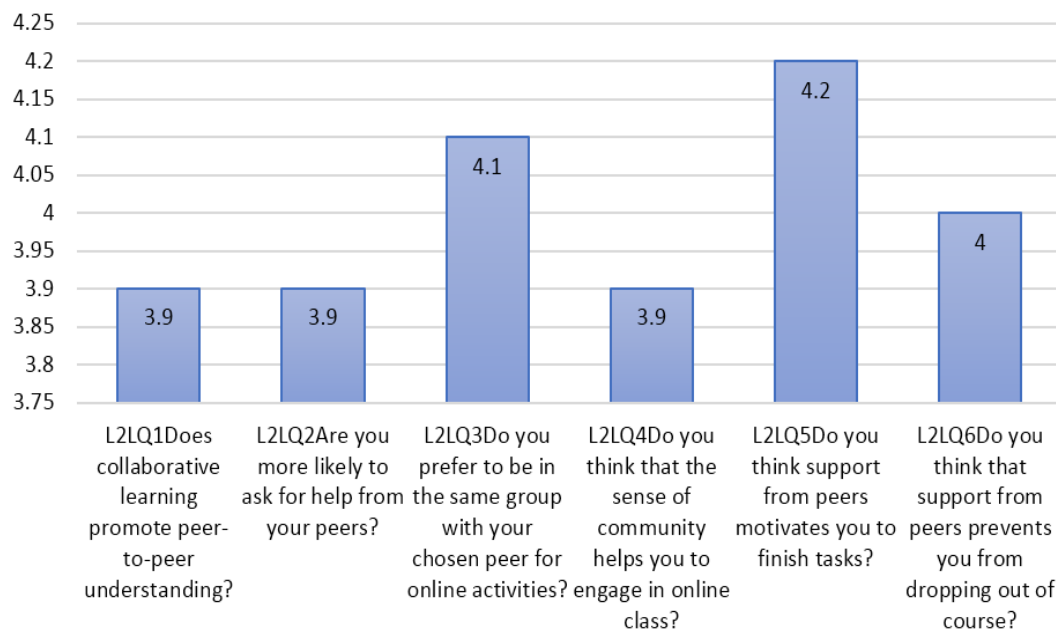


Figure 10. Mean for diversity.

In accordance with Figure 10, How is diversity portrayed in online learning? The study shows that peers play an important role in learner-to-learner interactions, which is that peers are motivated to finish the task given. This has the highest means of 4.2% while preferring to be in the same group with chosen peers for online activities (4.1%) and getting support from peers prevent the student to drop out of their course (4.0%), Collaborative learning promotes peer-to-peer understanding, more likely to ask for help from peers and the sense of community helps to engage in an online class (3.9%).

4.3. Findings for Autonomy

This section answers research question 2: How is autonomy portrayed in online learning? In the context of this study, autonomy is practiced during learner-to-teacher interactions.



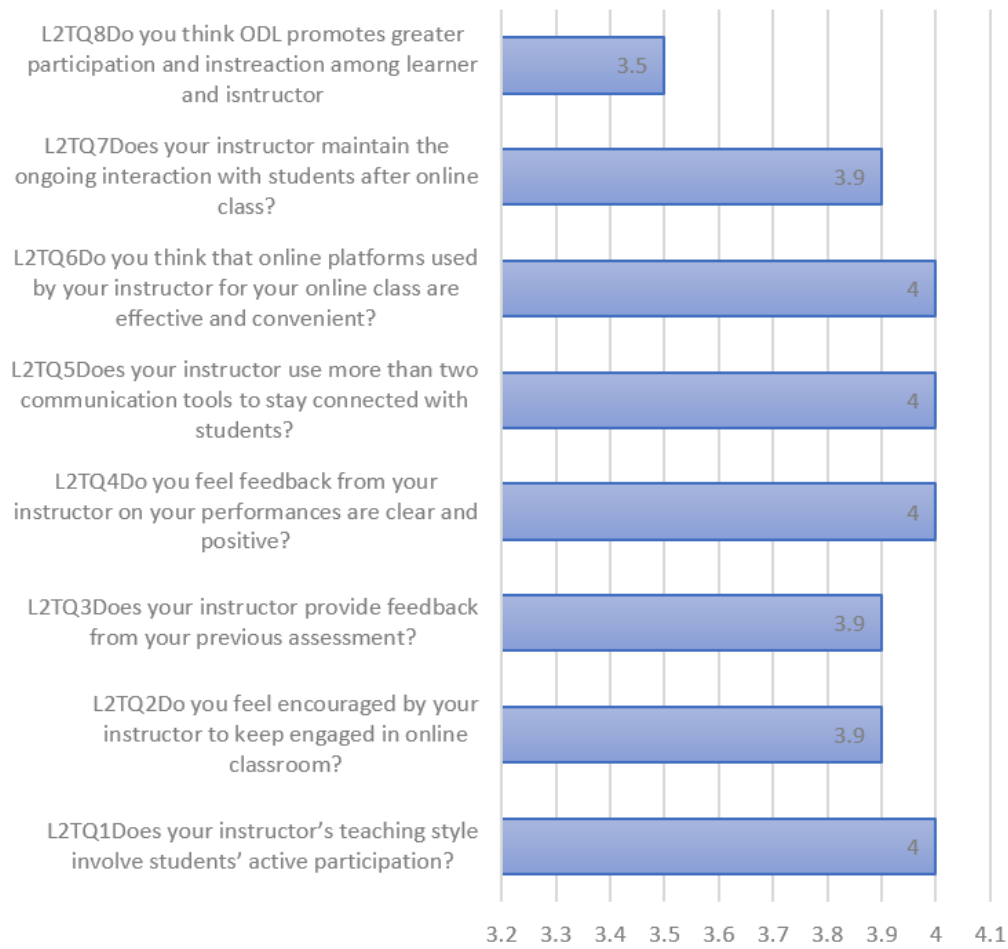


Figure 11. Mean for autonomy.

Figure 11 above shows learner-to-instructor interactions. There are 8 questions asked to all respondents (L2TQ1 to L2TQ8). There are 4 respondents' answers that show the highest total mean (4). The answers of the respondents who got the highest mean score (4) were L2TQ1 (Does your instructor's teaching style involve students' active participation?), L2TQ2 (Do you feel feedback from your instructor on your performances is clear and positive?), L2TQ5 (Does your instructor use more than two communication tools to stay connected with students?) and L2TQ6 (Do you think that online platforms used by your instructor for your online class are effective and convenient?). In addition, there are also 3 respondents' answers that got a total mean of 3.9, which are L2TQ2 (Do you feel encouraged by your instructor to keep engaged in the online classroom?), L2TQ3 (Does your instructor provide feedback from your previous assessment?) And L2TQ7 (Does your instructor maintain the ongoing interaction with students after online class?). Then, there is one answer from the respondents who got the lowest mean (3.5) which is L2TQ8 (Do you think ODL promotes greater participation and interaction among learner and instructor).

#### 4.4. Findings for Openness

This section presents data to answer research question 3: *How is openness portrayed in online learning?* In the context of the study, openness refers to learner-to-content interactions.

Figure 12 demonstrates the mean values of students' openness as portrayed through online teaching methods. From the results, the students showed a high satisfaction rate with the fact that they can feel that it is important to get an overview of the content before the class begins. It reveals that through the medium of online learning, students and lecturer can easily share the educational material before class begins, while only 3.7 mean students think that the asynchronous activities could offer immediate assistance and improve critical thinking skills. The second highest positive mean response rate was 3.9 with regards to "activities could improve the understanding of subject matter and students can use relevant knowledge wisely in the learning process". However, the score given by the students who agree that online learning gives more benefits than drawbacks is 3.5.

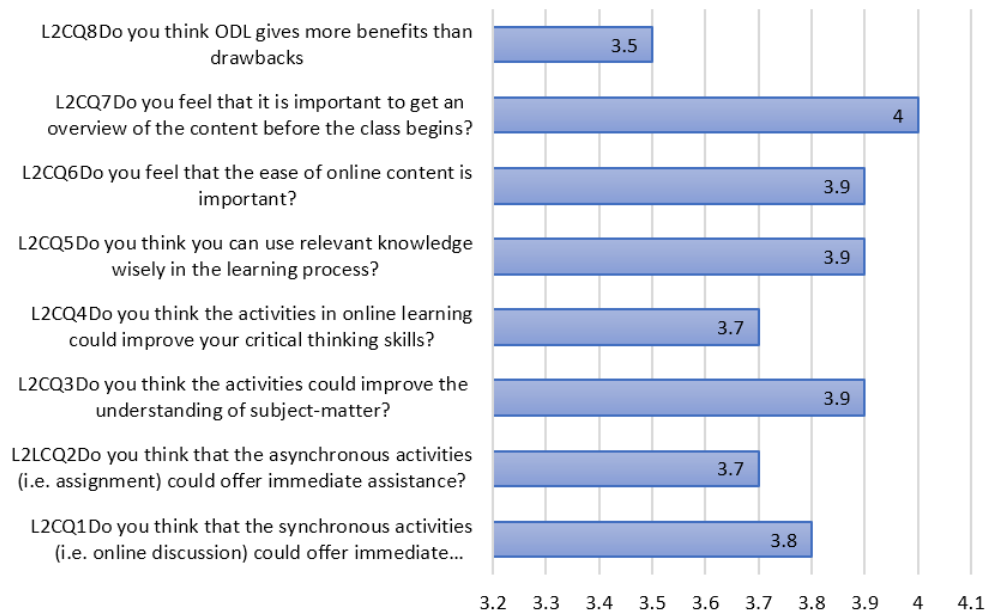


Figure 12. Mean for openness.

Table 3. Total mean for all types of online interaction.

| Types of Connectedness | Mean |
|------------------------|------|
| Mean for diversity     | 4    |
| Mean for autonomy      | 3.9  |
| Mean for openness      | 3.8  |

## 5. CONCLUSION

### 5.1. Summary of Findings and Discussion

One reason why learner like online learning is that it offers a diversity of interactions. With reference to Table 3, the highest mean was recorded for learners needing support and motivation from their peers. Next, learners need not fear that the autonomy of the teacher is not lost during an online class. Interestingly learners depended on their teachers to plan for their interactions with their peers. They also needed the autonomy from the teachers to maintain the ongoing interactions with their peers. This is also agreed by Fatonia et al. (2020) who reported that online learning has become a comfortable educational environment. This mode of learning has not only been accepted by learners to gain knowledge but also by instructors to disseminate their knowledge. In addition to that, Firmansyah et al. (2021) also found that online learning and teaching allow parties to better organize their learning and teaching respectively.

Nevertheless, the lowest total mean score is openness and in the context of this research, this refers to the interactions with the content that learners get (or did not get) during online learning. This is supported by Yahaya and Adnan (2021) who reported that online teaching methods can be impeded by internet facilities and this hindrance creates an uncondusive learning environment as it creates frustrations among both learners and instructors. This is also supported by Mailis et al. (2020) who also found that sometimes online learning gave challenges. Learners may be frustrated by ineffective communication if they were used to face-to-face communication. Some aspects of communication are lost via online communication such as non-verbal communication that can explain more than verbal discourse.

### 5.2. Pedagogical Implications

Nowadays, the education system has moved from a traditional classroom (face-to-face mode) to a virtual environmental classroom. Despite its prevalence, online learning is negatively associated with student connectedness (Hehir, Zeller, Luckhurst, & Chandler, 2021). This implies that the pedagogical method of online education including the systematic planning, organization, and development of education still needs improvement in terms of implementation (Ranaut, 2016).

The improvement also includes the teachers' and students' skills to use various ICT technologies in addition to online applications for online learning & video conferencing. Teachers should not neglect connectivity with students by continuing to pay attention to their willingness to learn and perform two-way communication with them while online learning takes place. This means teachers should be knowledgeable about the pedagogy best suited to online learning in this new learning environment. This coincides with what is mentioned by Caplan and Graham (2004) who states teachers has to play a crucial role in teaching online besides being expert on the content itself.

### 5.3. Suggestion for Future Research

Teachers need to plan the use of various ICT technology mediums to stimulate teacher-student relationships during online learning. Passive teachers who only deliver lessons using traditional one-way teaching methods cause students to be left behind in this new learning environment. For that, various methods of synchronous and asynchronous teaching need to be practiced. This can also help students who face internet coverage problems to participate in scheduled teaching and learning sessions. For example, synchronous learning through Google Meet, Microsoft Teams, Facebook live, Google classroom, and others while asynchronous learning can be conducted with recorded lessons and then shared with students via email, WhatsApp, Instagram, Telegram, and others.

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