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The Effectiveness of Open and Distance Learning (ODL) in Raising Student Learning Interest During The COVID-19 Pandemic

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Abstract

The COVID-19 pandemic has forced governments to declare a Movement Control Order that affects all sectors, including education. Students must remain in hostels or at home since they are not allowed to return to campus. Hence, university officials resort to the Open and Distance Learning (ODL) method to keep their operations running. Numerous collaborative digital platforms (e.g. Microsoft Teams and Google Meets), social networks (e.g. WhatsApp, Telegram, and Facebook), and even the telephone have emerged to aid in the learning and assessment processes. Locally, tertiary institutions have encountered various obstacles in getting their ODL systems up and running so that students can resume their studies. One of the challenges is adapting to and becoming comfortable with the various online platforms available. The inconsistency with which these platforms are used to try out and select the best one harms the learning and teaching process. This study investigates the efficacy of the ODL approach in increasing students' interest in the Electronics 1 (ELE232) course. The survey method and descriptive qualitative research are used in this study. 37 students from the J4EE1113A1 and J4EE1113B1 groups at the Faculty of Electrical Engineering, UiTM Cawangan Johor Kampus Pasir Gudang, who completed the Electronics 1 course in the 20204 semester, took part in this study. The data was collected using Google Forms, and the analysis followed Mile and Hubermen's interactive model, which had four stages: gathering data, creating data, presenting data, and drawing conclusions. According to the findings, 62% of students believe that ODL improves their ELE232 learning.

Keywords: COVID-19, Digital Platforms, ODL, Pandemic, Social Networks

Introduction

A startling new sort of pneumonia virus invaded the country at the start of 2020, disturbing not only people's living and working situations but also their educational progress (Ahmadon et al., 2020; Xu, 2020; Konecki, 2020). UiTM was one of the first universities in

Malaysia to release a circular in March 2020 on the use of online teaching and learning, known as Open and Distance Learning (ODL), to combat the COVID-19 pandemic, which is still spreading (Ahmadon et al., 2020). The "no suspension of schooling" requirement requires colleges and universities to actively engage in online teaching activities to ensure progress and quality of instruction during the pandemic prevention and control period, as well as to ensure that online learning is comparable to traditional classroom instruction (Xu, 2020). In response to the Ministry of Education's appeal, institutions of all levels and types attempted to implement online teaching in stages based on the features of the courses.

The COVID-19 pandemic has presented a lot of issues in the educational system, which educators and academics must address quickly and efficiently (Konecki, 2020). ODL has exploded in popularity as a means of educating students. And, while online learning was prevalent at some universities, for the vast majority of educators, this type of instruction was utterly new and foreign. As a result, an immediate and effective response was required. Universities have developed various forms of online assistance and education for their educators, and educators have made an extra effort to respond fast (Mawarni et al., 2020).

In general, most educators were able to swiftly adapt and deliver appropriate ODL resources and teaching approaches to their students. Many educators, on the other hand, have faced a variety of difficulties and experienced several obstacles (Ahmadon et al., 2020; Mawarni et al., 2020). Many students do not have a laptop, mobile phone, or Internet connection at home, making it difficult and less motivated to attend online classes as they have no other means. In addition, the long hours on laptops or mobile phones can cause stress for educators and students. Some of these difficulties were handled by university support staff, while others were left to the educators.

The term ODL refers to a technique of learning that incorporates the use of information and communication technology (Ahmadon et al., 2020; Krasna & Pesek, 2020). Students and educators can interact and communicate with one another through online learning without having to meet face to face. Since students and educators are unable to physically interact during ODL, a variety of supporting applications, such as Zoom, Google Meet, Microsoft Teams, WhatsApp, and Telegram, have been employed for teaching and learning reasons. The Faculty of Electrical Engineering, UiTM Cawangan Johor Kampus Pasir Gudang decided to adopt Microsoft Teams as a teaching and learning platform for the deployment of ODL. This is to make it easier for students because they do not have to install a variety of learning applications.

Microsoft Teams is a Microsoft Office 365-integrated collaboration platform (Krasna & Pesek, 2020; Wea & Kuki, 2020). Meetings, video conferencing, file storage, and quick access are all available with this programme. Users can build virtual courses and manage them in the same way they would for a real class, including students interacting with their friends and teachers. Online class meetings, discussions, posts, online evaluations, and assessments can all be used to facilitate this connection. Microsoft Teams also ensures that application user data is kept safe. Microsoft Teams' capabilities and conveniences make it ideal for the use of learning and learning-on-the-go platform. The Microsoft Teams platform was utilised to implement ODL for the ELE232 course during semester 20204, as shown in **Fig. 1.** The objective of this study is:

- To investigate the effectiveness of open and distance learning (ODL) in raising student learning interest during the COVID-19 pandemic for Electronics 1 (ELE232) course.

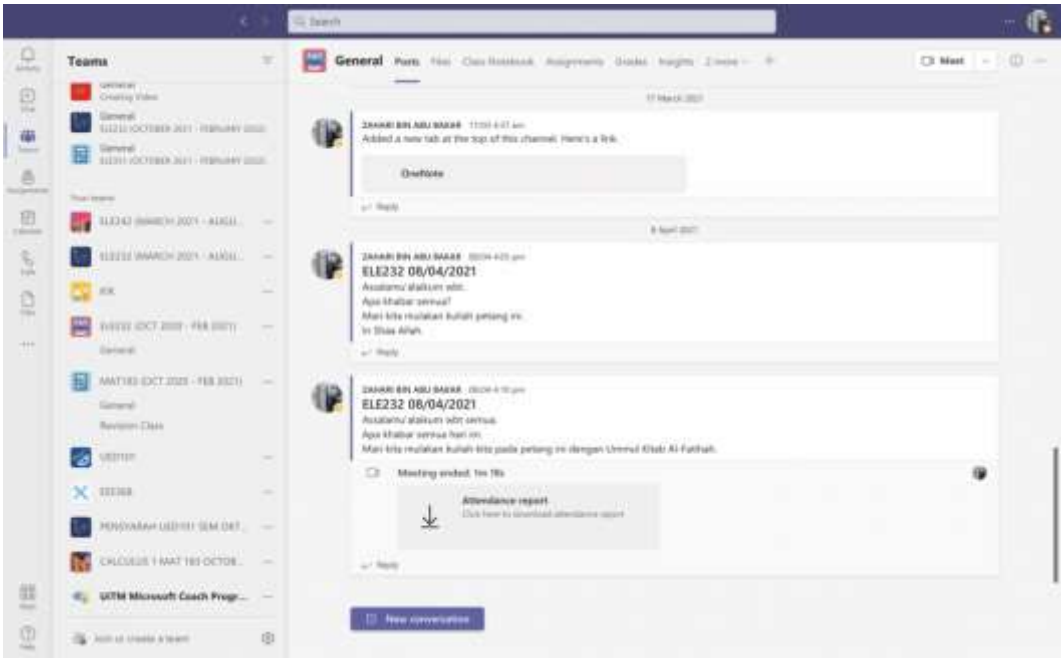

Fig.1 Microsoft Teams platform

Methodology

Open and Distance Learning (ODL)

During open and distance learning, there are numerous teaching and learning strategies that can be used, including (Konecki, 2020)

1. Knowledge-base
2. Online support
3. Synchronous training
4. Asynchronous training
5. Hybrid training

Lessons and other materials are made available online as part of a knowledge-base. The educators, on the other hand, do not provide any online assistance. Students can get this kind of help online through forums, e-mails, and other contact methods. Synchronous training combines real-time lectures with live educator assistance. Asynchronous training is a type of online learning in which lectures are pre-recorded and made available. Online and live in-person education are combined in hybrid training.

Asynchronous and synchronous teaching and learning approaches were employed in ELE232 course during ODL for 20204 semester. The two strategies that were employed are detailed in Fig. 2.

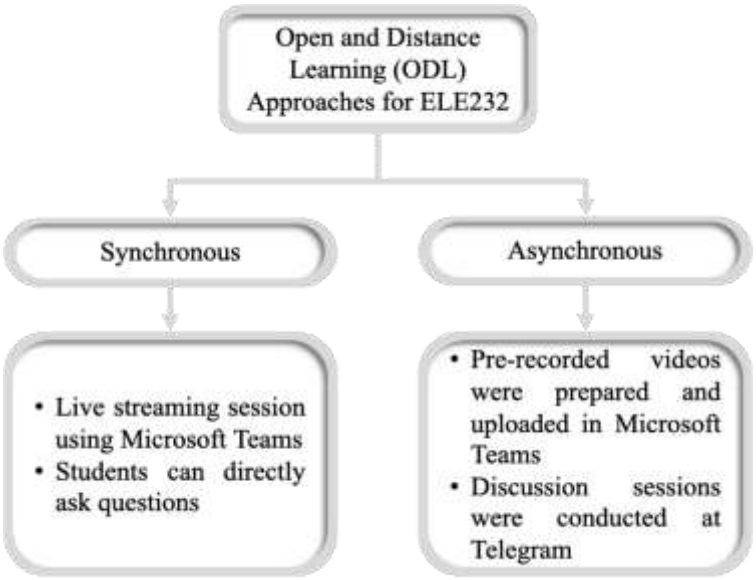

Fig. 2 ODL approaches for ELE232

Questionnaire

This study uses survey methodology in conjunction with descriptive qualitative research. The purpose of this study is to see how effective ODL is in increasing students' interest in learning during the COVID-19 pandemic. The participants in this study were 37 students who completed the ELE232 course during the pandemic.

Through Google Form, the data was collected using a questionnaire with various questions to determine the impact of ODL in improving students' enthusiasm for studying during the COVID-19 pandemic. The significance of the questionnaire in survey research impacts the success of the data quality study (primary data). **Table 1** shows some of the survey questions:

Table 1
The survey elements and questions

Elements	Questions
Feeling	How do you feel about ODL for ELE232?
Learning Facilities	Do you have access to a device for ODL?
	What device do you use for ODL?
	What is the current speed of Internet connectivity for students at home?
	What is the preferred medium during ODL implementation for ELE232?
	What is the preferred method during ODL implementation for ELE232?
Emotional Stress Control	How stressful is ODL for you during the COVID-19 pandemic in understanding ELE232 contents?
	Do you enjoy learning remotely especially for ELE232?
Help and Guidance	How helpful your university has been offering you the resources during ODL?
	How helpful are your ELE232 lecturer during ODL?
Effectiveness	How effective ODL has been for you for ELE232?
	How much time do you spend on an average for ELE232 weekly during ODL?
	Overall, please describe your experience while studying online especially for ELE232 course?

The analytical method employs descriptive analysis in conjunction with Mile and Hubermen's interactive model (Mawarni et al., 2020), which has four stages: gathering data, creating data, presenting data, and making conclusions as shown in **Fig. 3**.

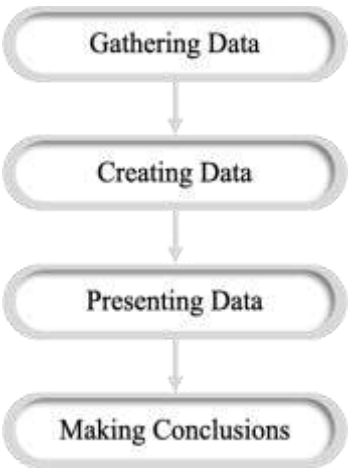

Fig. 3 Mile and Hubermen's model

Result and Discussion

The effectiveness of ODL in enhancing students' enthusiasm for studying during the COVID-19 pandemic, which is to obtain a distinct present from each student, was discovered through this research. The research was conducted by delivering questionnaires via Google Form to 37 students who had completed the ELE232 course during the COVID-19 pandemic,

as well as documentation via literature studies to back up the questionnaire's results. The findings indicated that the reliability of the questionnaire reached the value of Cronbach's Alpha (α) $\geq$ 0.800, indicating that the items have relatively good internal consistency. In addition, according to experts, the questionnaire has content validity because it covers all components of the construct being measured.

This course consists of four chapters; Semiconductor Material, Diode, Single Stage Bipolar Junction Transistor (BJT), and Single Stage Field Effect Transistor (FET). The architectures, operating concepts, and characteristics of electrical devices such as diodes, BJT, and FET are also taught in this course. For amplification purposes, the behaviour of these devices in DC and AC situations is investigated. Students should be able to understand the fundamental notion of solid state devices, analyse simple electronic circuits, and develop their ability to predict the behaviour of common electronic circuits and devices after completing this course.

The survey questions were divided into 5 elements, namely feeling, learning facilities, emotional control, help and guidance and effectiveness.

Feeling

The presence of social distancing causes students to define their learning motivation. It is critical to comprehend students' feelings to prevent them from falling behind and missing out during ODL sessions (Fadzlin et al., 2020). This course demands extra attention from the students for better understanding as it is a technical course. For this feeling element, the question elicits replies from students about their entire experience with online education. It gauges students' opinions on whether this open and distance learning should be sustained or converted to face-to-face learning.

According to the survey data presented in **Fig. 4,** 54.1% of students expressed good feelings, while 24.3% expressed excellent feelings when attending ODL lectures for the ELE232 course during the COVID-19 pandemic. The findings also show that students expressed favourable sensations while attending ODL's lectures throughout the COVID-19 pandemic for this course.

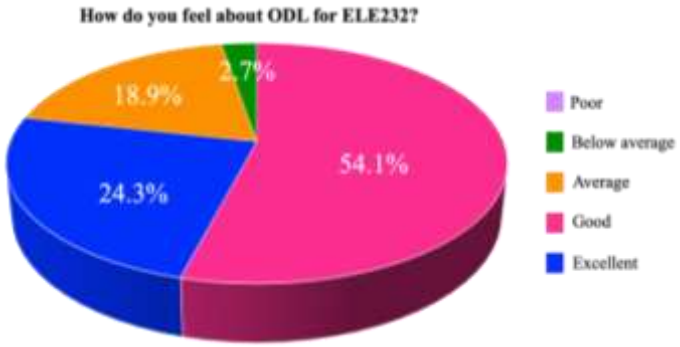

Fig. 4 Results of questions for students' feeling about ODL for ELE232

Learning Facilities

When ODL was first adopted (semester 20202) at UiTM Cawangan Johor Kampus Pasir Gudang in March 2020, educators employed a variety of platforms to perform the online teaching and learning process, including Google Meet, Microsoft Teams, Webex, and Zoom. To attend lectures online, students had to install different applications to suit the educators' different preferences. Some students find it difficult, particularly those who have issues with

an internet connection, limited internet data, or the use of low-spec devices. After completing many student surveys, the administration of the Faculty of Electrical Engineering, UiTM Cawangan Johor Kampus Pasir Gudang chose to employ Microsoft Teams as an ODL platform to solve this problem.

To execute ODL effectively and efficiently, learning instruments such as personal computers, laptops, mobile phones, and internet connectivity must be easy to use (Ahmadon et al., 2020). Before the ODL session began, a survey was conducted to learn more about the facilities that students will use.

During the implementation of ODL for this course, 91.9% of students had access to the device, while 5.4% had to share devices to undergo ODL, as can be seen in **Fig. 5**.

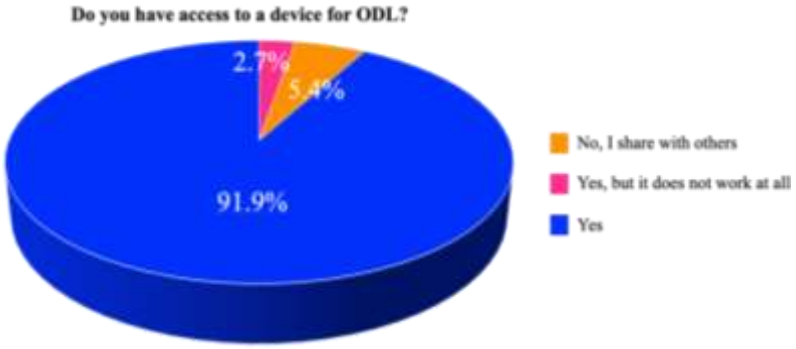

Fig. 5 Results of questions for device accessing for ODL

According to the results of the survey, 91.9% of students use a laptop for ODL, while 8.1 percent use a mobile phone, as indicated in **Fig. 6**.

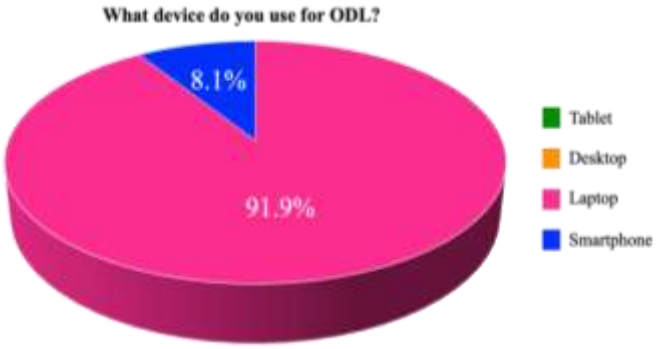

Fig. 6 Devices used by students during ODL

Students' access to the internet at home is one of the concerns for ODL deployment. It is difficult for students to attend online lectures if they do not have strong internet access (Ahmadon et al., 2020; Xu, 2020). However, the findings of the survey as shown in **Fig. 7**, revealed that 81.1% of students have a moderate internet connection at home. However, they can still attend courses with a basic internet connection though with some limitations and constraints.

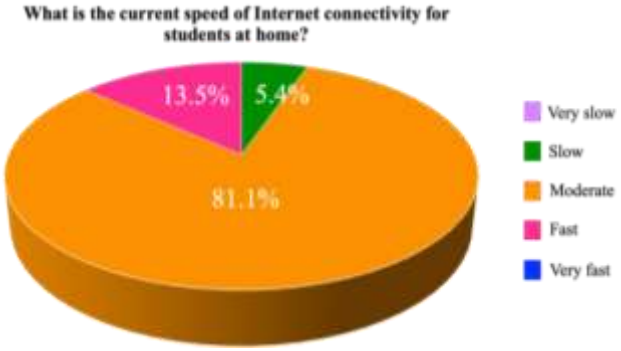

Fig. 7 Internet speed at student home during ODL

According to the results of the survey conducted, 100% of the students agreed that Microsoft Teams is the best platform for implementing ODL, as shown in **Fig. 8**.

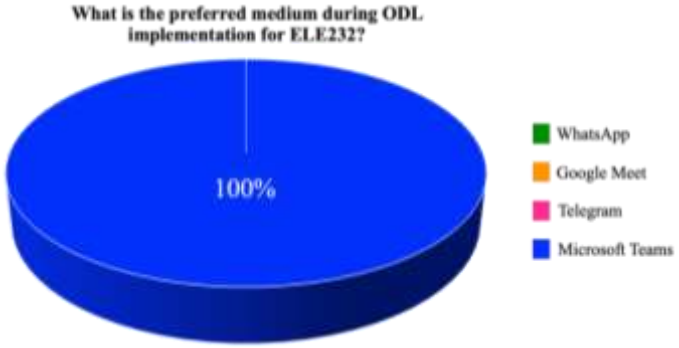

Fig. 8 Results of preferred medium for ODL implementation

Fig. 9 shows that 81.1% of students preferred to attend lectures synchronously (live streaming), compared to 18.9% who preferred the asynchronous method (pre-recorded video), because it puts them closer to the lecturer and allows them to ask questions directly if they do not understand something in the ELE232 course. According to the remaining 18.9% students, the asynchronous technique is suitable to be employed during ODL due to some limits such as internet speed problems and insufficient internet data.

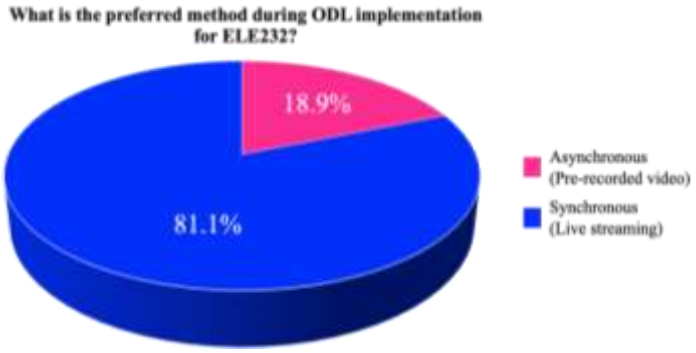

Fig. 9 Results of preferred method for ODL implementation

Emotional Stress Control

Creating a unique learning environment to students' personal experiences can help establish relationships and a feeling of community through the online learning experience, despite the inability to see their faces on a daily basis. This notion is similar to creating a good

learning environment in a traditional classroom; but, because of the lack of physical contact, it is likely to take more thinking, intention, and explicitness when done digitally.

Several early reports on the emotional impact of emergency remote teaching revealed some negative student reactions. (Dhawan, 2020; Dung, 2020) both expressed feelings of loneliness, dissatisfaction, and perplexity. Online learning is also thought to be harmful to students who lack self-control (Zhang, 2020)

With the continued pandemic, students are increasingly admitting to feelings of anxiety and insecurity. According to a research conducted in the Chinese districts of Wuhan and Hubei, 23% of kids who were placed on lockdown had depression symptoms, up from 19% previously (Galvin, 2020). Furthermore, students said that studying is not a priority during a pandemic and they are not prepared to learn when they are concerned about their elderly relatives (Abel Jr, 2020).

Besides, for some students who reported a lack of parental support for their academics, being at home while also having academic responsibilities is a cause of stress. These students, who are normally away at academic institutions, must now be confined at home with their families. They are expected to help with some of the family's responsibilities.

According to the survey conducted, the attained results as seen in Fig. 10 showed only 13.5% of students experienced stress while attending lectures by ODL for this course code. 43.2% of the total students stated that they were only slightly stressed, 35.1% moderately stressful while another 8.1% stated that they were not stressed at all to attend lectures by ODL for this course code.

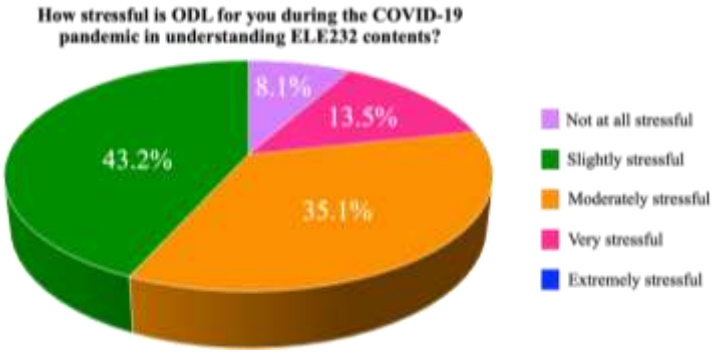

Fig. 10 Results of students experienced stress during ODL

This is supported by the survey results as shown in Fig. 11, which shows that 64% of students enjoyed learning remotely for this course, while another 37.8% said that they enjoy learning remotely but would like to change a few things, such as increasing practise from past exam questions during synchronous sessions (live streaming) and reducing asynchronous sessions.

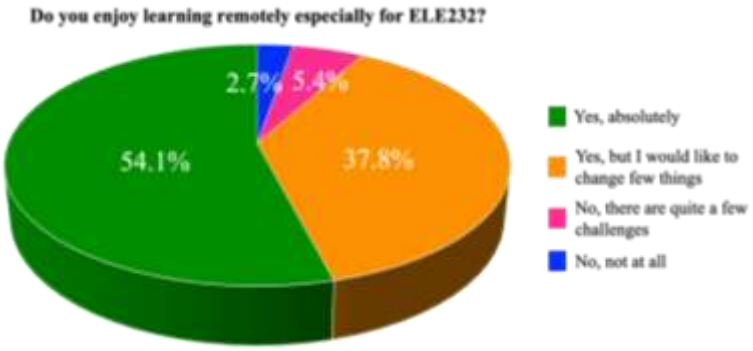

Fig. 11 The fun of learning remotely during ODL

Help and Guidance

The implementation of the ODL relies heavily on universities and educators. Students, particularly those who have trouble accessing the internet or using technology, require appropriate tools and materials from universities and educators (Ahmadon et al., 2020; Xu, 2020; Konecki, 2020; Mawarni et al., 2020). According to the survey results, as shown in **Fig. 12**, 51.4% and 35.1% out of total students said that UiTM Cawangan Johor Kampus Pasir Gudang was very and extremely helpful in providing resources to students during ODL.

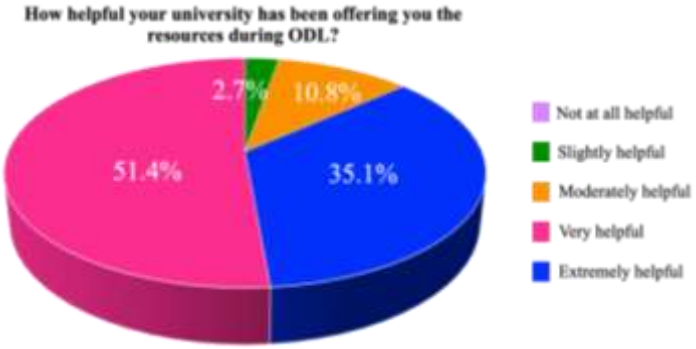

Fig. 12 The assistance from the university during the ODL

The most significant difference between online and face-to-face teaching is the]teaching and learning behavior in time and place. Meeting face-to-face allows immediate, real-time, and constantly interactive (Mawarni et al., 2020) teaching and learning. The efficiency of teaching activities is determined not by how well the educators talk or present, but by whether the teaching behavior effectively promotes the learning behavior, as well as the degree and effectiveness of the connection between the teaching and learning behaviors (Wea & Kuki, 2020).

This is why, in addition to online tutoring and educator explanations, online teaching should focus on student learning. Educators should use this as an opportunity to rethink their roles and conceptions, kicking off the student-centered teaching revolution. During the ODL, educators' assistance and direction are important so that students can follow the lectures effectively and are not stressed by the educators' teaching techniques.

According to the result of the survey conducted, as can be seen in **Fig. 13**, 54.1% of students said the lecturers for this ELE232 course were extremely helpful to them during the ODL, while 29.7% believed the lecturers for this ELE232 course were very helpful. The excellent method of delivery throughout the lectures, as well as the notes provided, are among the remarks made by the students to these lecturers.

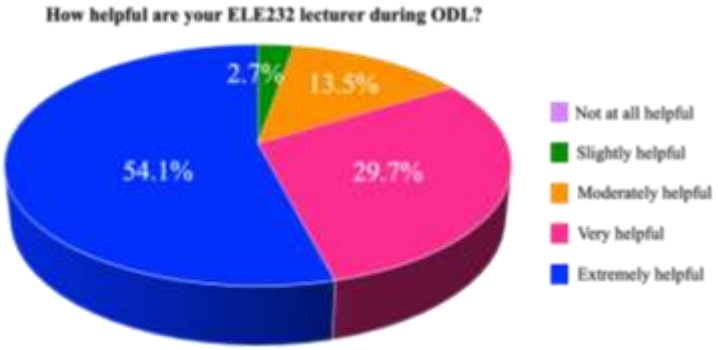

Fig. 13 The assistance from the lecturer during the ODL

Effectiveness

The efficacy of the teaching staff in conducting online lectures, which include live broadcasting, online interaction, and other technologies, determines the effectiveness of ODL. Strengthen educator training to understand the application of online teaching technology by clarifying the benefits and drawbacks of online teaching, effectively dealing with the drawbacks, and maximising the benefits (Konecki, 2020). On the other hand, to raise the utilisation rate of high-quality online education resources and the effectiveness of online teaching, strengthen the identification of educators' online learning resources and the training of their talents.

According to the findings of the survey, as shown in **Fig. 14**, 54.1% of all students said that the implementation of ODL for this ELE232 course was very effective, while 10.8% claimed it was extremely effective. Only 5.4% of respondents mentioned that the ODL implementation in this course code was slightly effective.

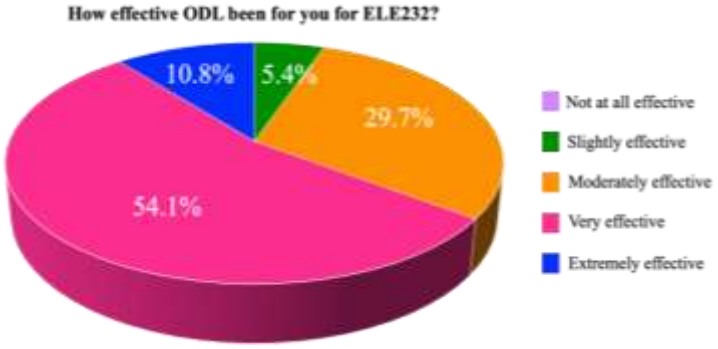

Fig. 14 The effectiveness of ODL for ELE232

This effectiveness is substantiated by data showing that 64.9% of total students spent about 5-7 hours per week on this course, while 10.8% spent about 7-10 hours per week on this subject, as can be seen in **Fig. 15**. In addition, 5.4% of the total students spent more than 10 hours a week on this course. This demonstrates the students' strong desire to achieve outstanding grades for this course despite having to study online.

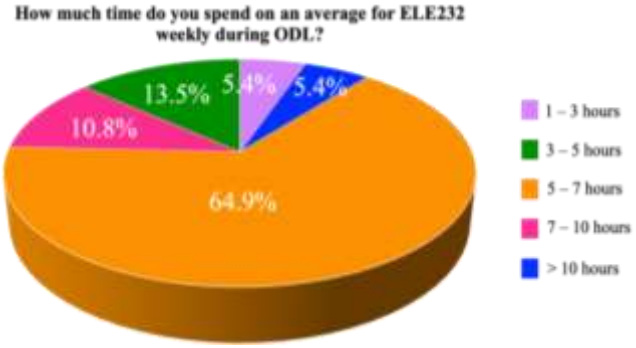

Fig. 15 The average time allocated for ELE232 during ODL

All of the above results were also supported by the analysis of the comments gathered from the students in the survey. The following are some of the students' comments:

- I had a fantastic time studying online for ELE232 since the lecturer was a fantastic lecturer who constantly made sure that his students understood every chapter he taught.
- Overall, it's fine for me because the lecturer was quite helpful and patient when teaching, and he will ensure that his students comprehend everything he teaches on that particular day. ODL, on the other hand, is a very stressful experience because we have to cope with the internet connection. Furthermore, studying remotely is really difficult because we are unable to maintain two-way communication due to poor line or internet connections; yet, I am able to complete this course because our lecturer is extremely patient and caring of us.
- Overall, studying online was difficult to adjust to, but it was less stressful in ELE232 since our lecturer offers students feedback and provides excellent explanations during live lessons.
- As for me, ELE232 was easy to understand due to the lecturers' teaching methods and the notes provided were very helpful.
- Among the subjects I studied, ELE232 was the most enjoyable. I've learned a lot about electronic components, which I thought would be difficult to grasp but isn't. Overall, I'm enjoying learning about ELE232 as part of this ODL.
- The notes that were provided were quite helpful, especially throughout the test. I did revision using the recorded video on Microsoft Teams, notes, and previous year's questions.
- It was enjoyable, but exhausting, because we had to spend hours in front of the computer.
- It was fine because of ODL, but the lecturer made a significant difference in the learning experience.
- During the lecture, I'm quite satisfied and had a good time. This subject fascinates me, as well as the manner in which the lecturer delivers his lecture.

Conclusion

Any crisis creates new possibilities, and the pandemic encourages the creation of the transformation of new technologies. During this pandemic, the teaching organisation structure, management methods, learning methods, and atmosphere have all changed dramatically in the context of online teaching. These changes necessitate not only continual

platform technological innovation, but also changes in educators' teaching concepts and methods. Similarly, management practices and strategies should be altered and enhanced. All measures should be geared at igniting a passion for learning, objectively reflecting student engagement, devotion, and learning effect, and gradually integrating student-centered, result-oriented, and continuous improvement talent training into the new era's teaching idea.

The survey results show that students are satisfied with the implementation of ODL using Microsoft Teams for this course, demonstrating the success of using Microsoft Teams during ODL. Furthermore, 83.8% of students received A+ and A grades for this subject in their final results.

In conclusion, even in the case of practical and technical courses that are considered to be difficult to teach and learn, ODL can be implemented in an organised and effective manner to ensure ODL effectiveness during the COVID-19 pandemic.

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