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AN ASSESSMENT OF THE INTERNET ACCESS AND
ACCESSIBILITY INITIATIVES ON THE EFFECTIVENESS OF
ONLINE LEARNING AMONG STUDENTS AT HIGHER
LEARNING INSTITUTIONS

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Abstract:

The spread of COVID-19 has shifted teaching and learning methods at all institutes of higher learning in Malaysia from traditional methods to online distance learning. To cope with this new teaching method, students face some difficulties. One of the most challenging is the lack of internet access and accessibility that constrains students' engagement and motivation toward online distance learning. The unaffordability to purchase internet data and poor internet connectivity are common problems that have often been voiced by students, as this greatly affects their attendance, communication, and submission of each class assignment. To reduce the burden faced by the students, government and telecommunication services providers introduced some initiatives to enhance internet access and accessibility. Thus, this study aims to review the impacts of internet access and accessibility initiatives on the effectiveness of online learning during the COVID-19 era. The conceptual reviews will acknowledge the policymakers on the barriers faced by the students, the impact of internet initiatives on online learning, and the recommendations to improve current practices on internet access and accessibility. It can be used by the policymakers to provide relevant initiatives to assist teaching and learning among students.

Keywords:

Online Learning, Higher Education, Internet Access, Internet Accessibility

Introduction

Since December 2019, the world has been attacked by pandemic COVID-19, which the first case was reported in Wuhan, China (Zhu, Wei & Nie, 2020). The COVID-19 spread to Malaysia in January 2020, when the first case was recorded by involving three Chinese citizens who entered this country from Wuhan, China (Che Mat, Edinur, Abdul Razab & Safuan, 2020). Prompted by a rapid increase in COVID-19 cases, the government of Malaysia has introduced a movement control order (MCO) to prevent the spread of COVID-19. During this period, people are encouraged to avoid public gatherings, some business sectors close temporarily, work from home, and implement social distancing. Thus, the daily routine has changed at which everyone is shifted to the online-based platform, and this is recorded through the increased number of users and time spent on the internet in this country in the year 2020.

Based on Internet Users Survey (2020), the number of internet users in 2020 is increased tremendously as compared to 2018. In fact, 50% of respondents in 2020 spent 5 to 12 hours a day on the internet compared to 2018, which was only represented by 37%. Meanwhile, 21% of respondents spent more than 12 hours on the internet, which increased by 7% from the year 2018. One of the possible reasons for the increased number of hours spent on the internet is the declaration of MCO. During this period, people are dependent on the internet to assess information, work from home, interact with others and seek entertainment. In terms of education, COVID-19 also affected higher learning institutions, where the traditional teaching and learning methods shifted to virtual platforms through online distance learning. This new method affected all including academicians, students as well as parents.

Engaging in online distance learning during this pandemic era is a great challenge, especially for B40 income family (Zainol, Mohd Hussin, Othman & Mohd Zahari, 2021). There are many cases when people lost their jobs or monthly income during this pandemic era, thus affecting their quality of living. To cope with the new learning method, students need to spend money to purchase technological devices and internet data. Some of them did not have any, thus lead to difficulties to engage in this new teaching and learning method (Zainol et al. 2020; Dube, 2020; Tanveer, Bhaumik, Hassan & Ul Haq, 2020). To reduce the burden and encourage the student's engagement in online distance learning, government and telecommunication service providers have introduced some initiatives to assist all parties concerned including those under B40 and M40 family incomes. The summary of initiatives in Table 1 is based on Prihatin Rakyat Economic Stimulus Package, Perlindungan Ekonomi dan Rakyat Malaysia (PERMAI) Assistance Package and Jalanan Digital Negara (JENDELA).

Table 1: Internet Access and Accessibility Initiatives

Initiatives	Description
Cash assistance	➤ Students at higher learning institutions received one-off cash assistance worth RM200
Device subsidy	➤ Subsidy for purchase of smartphone or device (RM180 & RM300)
Subsidy and free internet	➤ 1 GB free high-speed internet per day
Unlimited home and mobile plan	➤ Free 999 GB LTE hotspot pass for mobile post-paid users ➤ Bill rebates worth RM240 to upgrade home broadband plans.

Network connection	➤ Upgrade the network quality
	➤ Introduce Jalinan Digital Negara (JENDELA)
Tax relief	➤ Special tax relief of up to RM2,500 on the purchase of mobile phones, computers, and tablets

However, internet access and its accessibility remain crucial issues among students which influence their motivation and engagement in online distance learning during this pandemic era. A study conducted at a university in Malaysia indicated that the majority of the students are not ready to involve in online distance learning and one of the most challenging challenges faced by them is the accessibility of internet access. Students will be affected by low internet connection as it will impede them to participate effectively in online distance learning (Ismail, Abu Bakar & Syed Saadun Tarek Wafa, 2020).

As supported by Ramli, Majid, and Badyalina (2020), B40 students indicated internet accessibility as the most hindering factor, while M40 students faced social issues as a result of the most hindering factor for effective online distance learning during the COVID-19 era. The result for the overall sample showed that internet accessibility in terms of lack of internet access, expensive internet data package, and the incompatibility of some devices (telephone or laptop) are the leading factors towards ineffective online distance learning. The above mentioned is also supported by several previous studies conducted by Adedoyin and Soykan (2020), Ismail et al. (2020), Hawati and Jarud (2020), and Aboagye et al. (2020).

In addition, as explained by Zainol et al. (2021), internet access and devices as the biggest challenges in online distance learning. It is estimated that the B40 family is the affected group as they cannot afford to purchase internet packages and devices to meet their current needs. Besides, they are some parents that lost their monthly income or job during COVID-19, thus, purchasing internet data and making it a commitment is a burden for them. As supported by Hawati and Jarud (2020), it is better for a low-income family to save money for daily food instead of purchasing internet data. As supported by Dhingra, Pasricha, Sthapak, and Bhatnagar (2021), more than 30% of students missed online classes and audio-visual lags due to poor internet connectivity.

The introduction of various initiatives by the government and telecommunication service providers to reduce internet access and accessibility issues helped to minimise the burden faced by parents and students during the pandemic era. Thus, this study aims to evaluate or assess the impacts of internet initiatives on the effectiveness of online learning during the COVID-19 preventive measure period.

There are a few objectives in this study:

- 1) To identify the internet access and accessibility barriers faced by the students during the COVID-19 preventive measure period.
- 2) To identify the impacts of internet access and accessibility initiatives on effective online learning among students.
- 3) To provide recommendations to improve internet access and accessibility among B40 and M40 students.

Literature Review

Internet Access and Accessibility Barriers

Internet access and accessibility is the crucial element that can increase students' engagement in online distance learning. Past studies have mentioned the lack of internet access and accessibility as one of the important factors impeding the effectiveness of online learning. There are some issues discussed on the access and accessibility of the internet such as low internet coverage (Ramli et al. 2020, Ismail et al. 2020; Lee, 2020) or bandwidth problem (Ismail et al. 2020), lack of technology devices (Ramli et al. 2020), and internet data package affordability (Ramli et al. 2020).

According to Lee (2020), the issue of limited internet accessibility creates challenges for students, especially in rural areas. Ismail et al. (2020) also confirmed that students in the rural area faced the issue of network coverage, due to slow internet connection, and this led the students to deal with difficulty participating in the online class and submitting the assignments. The study also explained that the most concern problems faced by people living in the rural area are lack of connection and bandwidth problems. Low connection is faced by many geographical areas due to heavy usage of the internet during MCO. This is supported by Selvanathan, Mohamed Hussin, and Nor Azazi (2020) when state students in rural areas need to deal with difficulty in online distance learning due to limited internet access. In addition, bandwidth problems also led to connection failures during the lessons and video conferences (Ferri, Grifoni & Guzzo, 2020).

A study conducted at a university in Malaysia signified the internet problem as low internet speed and no Wi-Fi connection. The result indicated that 79.3% of students faced internet problems which then affect the effectiveness of online distance learning. In addition, the respondents' participation in online distance learning is affected by the less affordable price of internet data that is depleted in a short time, and the poor internet connection in their living area (Ismail et al. 2020). Besides, according to Ramli et al. (2020), more than half of respondents indicated that the current cost of the internet is expensive, thus making it unaffordable for them to do the purchase.

The Impact of The Internet on Effective Online Learning

Initiatives are introduced to reduce the burden faced by the students, as well as to encourage the effectiveness of online learning among students. As mentioned in the previous studies, the effectiveness can be based on the student's performance (Kintu, Zhu & Kahambe, 2017), student engagement, and motivation (Kintu et al. 2017).

According to Selvanathan et al. (2020) in their study that was conducted in Malaysia, they indicate that students are dissatisfied with their performance during the COVID-19 era. The students prefer to undergo their learning via traditional teaching and learning methods compared to online distance learning (Dhingra et al. 2021; Selvanathan et al., 2020). The lack of internet access and accessibility has undeniably encouraged difficulties in communication or interaction during learning, thus affecting their study performances (Lee, 2020, Ismail et al. 2020).

In addition, a study conducted by Hussin, Yaakob, and Zainal Abedin (2016) determined that accessibility such as easily access to the internet during the study has a significant relationship to student's motivation to involve in online learning. This is supported by Dhingra et al. (2021)

which internet connectivity and affordable internet package will affect the student's motivation to participate in online distance learning. Lack of internet access or accessibility will also give a negative effect on the learning process. As determined by Dhirga et al. (2021), more than 30% of students are absent from five or more online classes a week due to network connection issues. This is supported by Gustiani (2020), in which students also mentioned that poor connection leads to demotivation, thus enhancing the chance of them not attending the class and getting left behind.

A study conducted by Zoljargal (2021) determined that internet access has a positive significance to influence students to participate and perform while engaging themselves in an online learning platform. Participation in the study is defined based on students' engagement in the online forum, where they participate actively in online forums and chats. Meanwhile, performance is measured based on their test and a good grade.

Research Framework

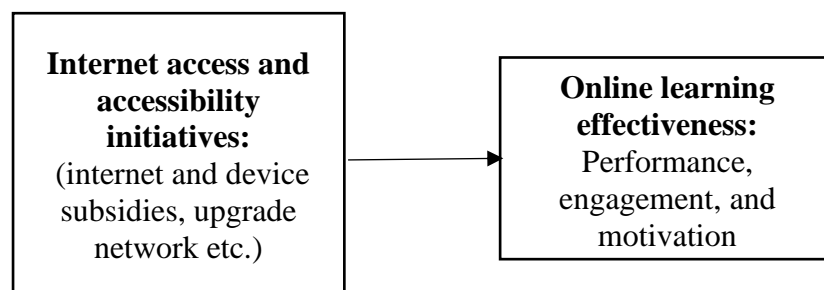


Figure 1: Research Framework on The Impacts of Internet Initiatives on The Effectiveness of Online Learning among Students at Higher Learning Institutions

Recommendations to Improve Internet Access and Accessibility

The government and telecommunication service providers have taken some initiatives to increase the engagement of students in online distance learning during the pandemic era. Instead of these initiatives, previous studies have recommended some ways that are believed can solve internet access and accessibility issues. As indicated by Selvanathan et al. (2020), proper technology is needed to improve internet access; it helps students to participate in online learning and manage to get the study materials. Undeniably, the lack of study materials creates worries among students while engaging themselves in online distance learning (Ismail et al. 2020). Besides, Ferri et al. (2020) encouraged the government to provide initiatives for the parents or students to purchase affordable devices such as computers or tablets. Unaffordable to buy compatible devices or internet data will affect the student's performance and demotivate them to learn especially via online distance learning.

According to Gong (2020), telecommunication service providers should provide more free unlimited data, as the free 1GB data provided was not enough for students to engage in online distance learning during the COVID-19 era. This is supported by Adedoyin and Soykan (2020) which free data should be provided not only to the students but also to the academicians. In addition, internet subsidies also can help to encourage the engagement of students in online distance learning.

In addition, Ismail et al. (2020) and Ferri et al. (2020) suggested the development of a more reliable network infrastructure. It is a crucial issue for students, especially in some geographical areas that impede their engagement in online learning. The network infrastructure needs to be upgraded to support more than a million students to have access to good internet at the same time. In this pandemic era, students and lecturers should have a good internet connection to ensure the effectiveness of the online learning process. As suggested by Ferri et al. (2020), the implementation of 5G technologies is one of the initiatives to improve the connection issue. The connection problem can be reduced by developing 5G technologies, as it will contribute to more efficient connection, allow more data can be transferred, and improve online performance, especially during the COVID-19 era. Mukhtar, Javed, Arooj, and Sethi (2020) indicated that government should play its important role to solve this issue, besides, the telecommunication services provider should invest in providing high-speed internet to communities. Moreover, Ismail et al (2020) recommended that the institute of higher education should also improve their bandwidth to avoid problems during the online learning process.

Conclusion

This conceptual study can provide ideas for policymakers to improve the current practices and assist the policymakers to acknowledge the barriers on the internet access and accessibility faced by the students. This is one of the crucial initiatives that determine students' learning performance. Furthermore, the recommendations provided can be used to improve the current policy or practices. Thus, relevant initiatives can be offered based on the student's requirements and needs. This will help to improve the online learning practices among the students, especially at higher learning institutions. Owing to the limits of a conceptual paper, it is proposed that future research to conduct further testing and analysis to enhance the empirical evidence and provide solid results based on the students' perspectives.

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