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Mobile Devices: Investigating the Students' Learning Needs in the Post-Pandemic Education Landscape

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ABSTRACT

Covid-19 has expedited the digitalization of all aspects of people's life. Consequently, students are glued to their screens for many reasons. The phenomenon 'screen time all the time' is common today in the post-pandemic era. Although many face-to-face class sessions have started to replace the once used to be online classes during the pandemic, students still appear to be dependent on their mobile devices. Are these students negatively distracted by their devices? Do they occupy their screen time for academic purposes? This quantitative study was proposed to shed light on Universiti Teknologi MARA Kedah branch students' use of mobile devices as well as to investigate their learning needs on the use of mobile devices for their tertiary education in the post-pandemic era. The research tool used was in the form of a questionnaire. The subjects were part five undergraduates from an Accountancy degree program. The descriptive statistics percentage revealed that more than 80% of the students use the mobile devices to surf the Internet for the purpose of education while the mean scores result exposed that the students are positive of the benefits that they would gain with the use of mobile devices in the mainstream education.

Keywords: *Tertiary Students, Learning Needs, Mobile Devices, Post-Pandemic*

1 INTRODUCTION

The Covid-19 resulted in billions of students throughout the world, be it at kindergarten or university, to be out of the classroom. To curb the spread of this deadliest pandemic, education premises were instructed to shut down. Consequently, there was a distinctive rise in online education through digital platforms, and since then education in general has changed drastically!

The concept of e-learning has been much talked about and researched by academia long before the pandemic. As mobile handheld devices have risen in popularity and are becoming a must-have tool, it has given rise to mobile learning (m-learning), a subset of e-learning. In Malaysia, the implementation of e- or m-learning has taken off, but at a much slower rate due to various arguments and doubts among the educators who mostly belong to the "digital immigrants". This situation was well-expected. Prensky (2001) described the incredible gap between the generations of students and educators as "digital natives", and "digital immigrants" respectively. During the Covid-19 pandemic, the lack of preparation and difficulties faced by educators and administrators has caused a general crisis in the education scenario especially the so-called emergency remote teaching (ERT) affecting educators and students alike (Hodges et al., 2020). The scenario, to a certain extent, has positively affected the "digital

immigrants" to become more open toward innovation and new learning opportunities that were not as evident before (Rapanta et al., 2021).

Mobile learning as described by various researchers as 'anytime' and 'anywhere', offers some pedagogical advantages that support collaborative learning, blended learning, interactive learning, experiential learning (learning in context), and problem-based learning to be carried out, whilst, at the same time it fulfils the users' expectation for privacy, self-regulated learning (control of learning), flexible learning, life-long learning and to the utmost fun of learning (Samsiah Bidin & Azidah Abu Ziden, 2013). Such advocates of mobile technologies enable mobile learning to support second/ foreign language learners and teachers with ever greater opportunity to practice the target language "anywhere and anytime". With the user created content and Web 4.0 technology, users' participation is enhanced and consequently, mobile learning provides new kinds of learning and teaching with technology in second/ foreign language instruction. With all the benefits of mobile learning exposed, would the same usefulness or learning needs prevail among the UiTM students if they were to be investigated on their use of mobile devices in education in today's post-pandemic landscape?

On the other hand, a research study by the Gonski Institute for Education at UNSW Sydney reveals the great distractions from the digital media and technologies on family life. Nine out of ten parents think that digital devices negatively distract their own lives, and 83% think their children are also negatively distracted by digital gadgets (Graham, & Sahlberg, 2021). Adeyemo (2023) also highlights that 90% of students spent most of their time on social media instead of learning. With these negativities exposed, would UiTM students be using mobile devices for the purpose of enhancing their studies or they are more likely to be among those who fall into the category of negatively being distracted by the device?

Thus, this study investigates the current state of mobile devices usefulness as perceived by the present tertiary level students in UiTM Kedah branch. Specifically, the aims of this study are to investigate the purpose of using mobile devices among the students and to discover the students' learning needs on the use of mobile devices for their mainstream education.

This small-scale study focused on the degree students at Universiti Teknologi MARA (UiTM) Kedah branch only. The results are considered essential as it gives an overview of the students' learning needs on the use of mobile devices in the post-pandemic education landscape.

2 LITERATURE REVIEW

The use of Information and Communication Technologies (ICT) in Higher Education Institutions (HEIs) has always been given priority particularly whenever distance education is offered. Significant improvement in mobile computing and technologies has also provided the fundamental infrastructure to support mobile learning. The adoption of mobile learning in education technology has shown a high growth. In 2019, the investment in global edtech reached US$18.66 billion and is expected to increase to US$350 billion by 2025, indicating a significant surge in usage ever since (Li & Lalani, 2020).

In Malaysia, such advancement in mobile computing and technologies have also triggered the initiatives to complement the mainstream education face-to-face (F2F) instructions with mobile learning (i-Learn Centre, 2012). Though these intentions have once raised various arguments and doubts among the educators, the initiative continues to proceed. The recent Covid-19 pandemic has changed the global education landscape. In response to the demand on education during the pandemic, there has been a significant surge in the use of digital platforms to deliver education remotely. The use of online learning software, virtual tutoring, video conferencing tools, language apps and many more have been adopted as compensation for the sudden shift away from the classroom.

2.1 Advocates of Learning through Mobile Devices

Though there have been slight variations for the definition of "mobile learning", researchers have agreed that mobile learning happens when learning opportunities are offered via mobile devices (O'Malley et al., 2003) which are small, autonomous and unobtrusive enough to accompany individuals in every moment (Trifonova et al., 2004) and enable them the ability to communicate, collaborate, teach, and learn (Keegan, 2005; Kukulska-Hulme et al., 2005; Trifonova & Ronchetti, 2003) wherever and whenever they want to (Chen & Kinshuk, 2005; Csete et al., 2004). Thus, mobile devices are the key tools needed for mobile learning to take place.

Despite the 'digital immigrants' argument and doubts, many researchers have highlighted some of the key benefits that mobile devices offer. For example, much has been said that mobile devices can help the students to be engaged in learning because it keeps them connected to what is occurring in the classroom when they are elsewhere (Peng & Chou, 2007). The disconnection usually occurs between the students and their lessons once the school day is over. As a result, the students seem to forget everything that they have learned and failed to recall the lessons learned the previous day. By having mobile devices with them, students can ensure the connection remains. When the connections continue, students are more integrated in the learning process, their minds remain more active, and they are more aware of what they are learning. Mobile learning through mobile devices offers a means to prevent this disconnection and to shift learning from the formal setting of the classroom to the more informal setting outside of it. Mobile devices are useful as a tool to keep the students connected to what is occurring in the classroom when the students are elsewhere.

Apart from that, mobile devices can be utilized for learning to take place outside of the school or the learning institution compound such as at museums (Reynolds et al., 2010; Chiou et al., 2010), a temple (Hwang & Chang, 2011), a wetland (Hung et al., 2010) and the sea (Pfeiffera et al., 2009) or within the school or the learning institution compound (Chu et al., 2010; Coulby, et al., 2011). "Any time", "any place", and "any pace" are the features of mobile devices that allow mobile learning to be conducted in a formal and/or informal environment, thus supplementing classroom learning.

Additionally, mobile devices allow the users to interact with people, access content, and utilize services at specific times of need and therefore are seen as potential educational tools for research purposes (Trifonova & Ronchetti, 2003). In the present networked society, the students especially those at colleges and universities who are well versed with the new mobile technologies and their applications, rarely think of going to the library or searching through printed materials like journals, magazines and encyclopedias as information is now accessible via phones, cable lines and wireless systems 24/7. These students are the generations that would turn to the Internet first, when faced with a question or an assignment for class rather than to their tutors. According to Robert and Foehr (2004), the Internet has deep roots in the lives of this generation of students, more than all other technological innovations. They are the group of people who search for information according to their convenience and surfing the Internet has become a daily routine. The uses of mobile technologies and the Internet usage allow them to retrieve information they need to extend their learning.

Peng and Chou (2007), in their study on using mobile computing as cognitive tools by middle school students, note that different tools may be useful for different cognitive tasks. They stress that not only should one select the appropriate tool for the desired learning, but also the learning interface must allow learners to focus on higher order thinking. The right mobile tools would encourage students to take responsibility for their learning. In this supportive learning environment, mobile learning is also said to promote creativity and thinking as web-based resources encourage learner-centered. Web-based learning provides candidate information to be engaged and interpreted which differs from textbook teaching and learning.

From the perspectives of educators such as Dr Amjad, a Professor at University of Jordan, he realizes the benefits of the digital platforms especially during Covid-19 pandemic and believes traditional

offline learning and e-learning can go hand by hand. He has been using Lark to teach his students and this has changed his way of teaching in which it has efficiently and effectively enabled him to reach out to his students through chat groups, video meetings, voting and document sharing, especially during the pandemic. He continued using Lark even after coronavirus (Li & Lalani, 2020).

Shen and Prior (2023) developed a metric to measure students' and teachers' performance in higher education based on their experiences and observations on mobile learning. The results showed that 90% of the participants had used their smartphones in an online learning situation. It was also discovered that three-quarters of the participants (75%) adapted and adopted well in terms of using their smartphones/tablets for learning and teaching as they could save time and money by traveling to the campus.

2.2 The Adverse Effects of Learning through Mobile Devices

Though one cannot deny the importance of disseminating knowledge during Covid-19 through online learning technology, one must not overlook the potential hindrances that come with it. Some researchers have indicated the adverse effects of mobile devices. According to Flynn (2021) when two tasks are done simultaneously, the quality of the work may be compromised. Stenger (2013) also shared the same view that the process of learning would be affected negatively as a person is being distracted by the devices or external stimuli that we use every day. Additionally, the students may fail to retain important information while simultaneously playing with their phones.

Shen and Prior (2023) suggested that the process of learning could be interrupted due to the students were reluctant to download the required reading materials. This may be due to the limited memory of their smartphones or if the files were too large. In overcoming the adverse effects, students should learn to self-regulate their behaviors and appropriately manage their screen time (Miller, 2021). It is not easy to self-regulate oneself as it requires behavioral maturity and discipline. Failure to do so can affect the quality of assignments and academic work.

3 RESEARCH METHODOLOGY

The survey method is used for data collection. A self-report questionnaire was developed to obtain data on the purpose of using the devices and the students' learning needs on the use of mobile devices in the mainstream education in the post-pandemic education landscape.

3.1 Subjects

All 50 undergraduates, namely AC220 (Bachelor of Accountancy) in UiTM Kedah campus were involved as the respondents of this study. They were all in semester five of their degree program and were chosen as they were considered to have been well-exposed to the education systems in UiTM during and after the pandemic due to Covid19. Majority of the respondents were females (N=35).

Table 1 Demographic Information of Students (N=50)

Gender	Frequency
Males	15
Females	35

3.2 Research Instrument

The research instrument used to gather the data was in the form of a self-administered questionnaire. The students were given the set of questionnaires and asked to fill in the google form that comprised questions on four parts: types of mobile devices owned by them, purpose of using the mobile gadgets, awareness of and readiness for mobile learning and learning needs on the use of mobile devices.

However, this study reports on the results of two (2) sections only which are the purpose of using the mobile gadgets and learning needs on the use of mobile devices in mainstream education. The reliability test of the instrument produced a Cronbach Alfa of 0.828, which was acceptable.

3.3 Data Analysis

The data collected were computed and analyzed using the SPSS21. The statistical procedures used in this study were descriptive statistics – means scores, frequency and percentage.

4 RESULTS

4.1 The Purpose of Using Mobile Devices

The results of the survey focus on eight (8) different activities usually engaged by the students in using their mobile devices. The activities were making calls and sending SMS, listening to music, downloading/ watching video and surfing the Internet, sending MMS, note-taking, emailing, using the organizer and playing games. The results recorded are as follows:

Table 2 The Purpose of Using Mobile Devices

No	Purpose of Use	Percentage
1	Making calls and sending messages	100
2	Listening to music	84.4
3	Watching videos	82.6
4	Surfing the Internet	82.6
5	Sending MMS	65.2
6	Note-taking	52.2
7	Emailing	47.8
8	Using organizer	32.6
9	Playing online games	21.7

4.2 Learning Needs on the Use of Mobile Devices

The data collected on the learning needs on the use of mobile devices highlighted four variables which are: Be Engaged in Learning, To Supplement Classroom Learning, For Research Purposes and Can Promote Creativity and Thinking. The results recorded are as follows:

Table 3 Learning Needs on the Use of mobile Devices

No	Learning Needs	Mean (M) Score
1	To be engaged in learning	3.96
2	To supplement classroom learning	3.76
3	To do research/ assignment	3.91
4	To promote creativity and thinking	3.72

5 DISCUSSION

The activities that the students engaged in with their mobile devices reflect their answers in the following section which is the students' learning needs on the use of mobile devices for their learning. The results revealed more than 80% of the students using the gadgets to surf the internet for information and download/ watch videos. More than half of them use the gadgets for notetaking suggesting that the students spent most of their time in academic work. However, surprisingly, playing games received the lowest scores.

The high mean scores recorded on each of the four learning needs on the use of mobile devices for their learning indicate the students' positive attitudes in using mobile devices. Of all four, Be Engaged in Learning has the highest mean score, followed by For Research Purposes, To Supplement Classroom Learning and finally can Promote Creativity and Thinking. Thus, the findings suggest that the students are optimistic of the benefits that they would gain using mobile devices in the mainstream education in the post-pandemic education landscape.

6 CONCLUSION

This present study is considered essential as it provides the overview of the current state of UiTM students' mobile devices usage and their learning needs in enhancing their mainstream education in post-pandemic era. Obviously, the younger generation has a craze for mobile devices as the results clearly show that mobile devices are indeed in need. They use the mobile devices for various reasons like downloading/ watching video, sending and receiving emails, SMS/MMS, listening to music, downloading applications, surfing the Internet for education content, note-taking and playing games. With these kinds of mobile learning activities among the students, having face-to-face learning sessions as well as e-learning in the mainstream education is not really a problem to these "digital natives" because they seem to be knowing of the functionalities and capabilities of the devices as well as well-exposed to the devices.

The study was also undertaken to answer the doubts regarding the learning needs of the students on the use of mobile devices in higher education as perceived by them. The most obvious benefit of mobile technologies as perceived by the students is the possibility of them to remain engaged in learning. For them, staying connected to the lesson after class hour is crucial. Thus, this supports Peng and Chou (2007) and Shen and Prior (2023) in which the students adapted and adopted well in terms of using their smartphones/tablets for learning and teaching. Secondly, the students perceived that mobile devices are useful and helpful for research purposes. This supports Dr Amjad opinions (as cited in Li & Lalani, 2020), Trifonova and Ronchetti (2003), Bowman (2002) and Robert and Foehr (2004) that technology has changed the way students learn and search for information. Thirdly, the students felt that mobile devices could help to supplement classroom learning as the lessons could be delivered both in formal and informal environment. Finally, they also believed that using mobile devices for learning purposes could further promote and enhance their creativity and thinking as it promotes more independent learning (Holzinger et al., 2005), enhances their knowledge and therefore, increases their motivation (Duncan-Howell & Lee, 2007).

Even though the use of mobile devices in their learning activities seems to be positively welcomed by the students, educators still must be cautious to make the learning successful. The elements, namely the infrastructure provided by the learning institutions, type of technological devices and learning content, the management of the learning system, and skills and trainings needed for educators as well as the students need to be properly considered to ensure the teaching and learning process can take place successfully. Therefore, future studies should cover a wider scope involving more participants from both public and private higher institutions. It is suggested that these studies should be carried out to get a more comprehensive scenario of the learning needs on the use of mobile devices for learning at tertiary level specifically in Malaysia in this post-pandemic education landscape.

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CONFLICT OF INTEREST

There is no conflict of interests.

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