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Postgraduates' Readiness towards Online Learning during Pandemic Covid-19

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Abstract
The term 'online learning' has been widely discussed as the pandemic COVID-19 pushed all institutes of higher education to opt for the new norm in teaching and learning delivery. In this testing time, much has yet to be uncovered about how students respond towards the new norm in teaching and learning during the pandemic and one of the student factors is their readiness. Against such a backdrop, this study sought to investigate a group of postgraduates' learning readiness towards online learning. Three readiness constructs namely a) learning preference towards online learning, b) self-directedness towards online learning and c) technology skills and computer equipment capabilities were explored in determining the respondents' level of readiness. Employing a quantitative research design, a set of questionnaire with a 5-point Likert scale was adapted from previous research for data collection. The questionnaire was distributed via online to postgraduate students (n = 140) at one faculty in a selected higher education institution in Malaysia. Data was analyzed using descriptive statistics and the mean scores for each construct were determined. The findings reveal the respondents' level of learning readiness in each of the construct. Despite high levels were determined on the first two constructs of readiness, the level identified for the respondents' computer equipment capabilities highlights varying degree of online learning readiness amongst the postgraduates. These findings and their implications could assist educational stakeholders and policymakers in ensuring online learning could be leveraged effectively among postgraduates as there are evidences pointing towards the need for technical skills and support.
Keywords: Higher Education Institutes, Learning Readiness, Online Learning, Pandemic Covid-19, Postgraduates

Introduction

The outbreak of the COVID-19 pandemic has affected various sectors globally, which compels governments to make changes in their policies and practices as well as impel stakeholders namely teachers, students, and institutional administrators to churn alternative strategies for sustainable education. With the increasing number of positive infectious cases, many nations have imposed learning institutions closure since March 2020. While some countries keep their learning institutions open with Standard Operating Procedures (SOP), Malaysia has recently

declared the closure of all learning institutions nationwide due to the emerging trends of 'education clusters' in an attempt to curb the COVID-19 widespread as the number escalates in the third wave. Therefore, open and distance learning (ODL) takes center stage towards keeping the sustainability of education nationwide. However, students' learning attitude and readiness towards ODL in the Malaysian tertiary education context have yet to be extensively investigated (Adams et al., 2020).

As in May 2021, a nationwide Movement Control Order (MCO) was re-imposed in response to the third wave of COVID-19 cases that declares the suspension in various economic activities, including the deferment of education at all levels. The announcement of immediate effect prompted educational stakeholders to devise appropriate methods and techniques in sustaining education. Although the initiatives to maintain learning continuity and efficiencies to replace conventional lectures with online learning, students were not trained with adequate technical skills and knowledge, risking them of falling behind (Schleicher, 2020).

Research Background

Open Distance Learning (ODL) is not a recent phenomenon. Since it was introduced in 1969, many Malaysians have enrolled in open and distance learning programs, especially among those who are still working and aspire to grow their career development. However, since it has become prevalent with even face-to-face physical discussions being prohibited, many educational stakeholders have displayed mixed reactions to the move. According to Khan and Jawaid (2020), this mode requires sufficient resources, advanced infrastructure, training, and acceptability that certain students are lacking.

Despite Malaysia having stepped up its National COVID-19 immunization program, with more than 80% of the population fully vaccinated, the opportunity for vaccination for higher education students were only made available in August 2021. Consequently, the 'hybrid' teaching- learning in HEIs context is prolonged until Malaysia has safely achieved herd immunity against COVID-19. A special announcement made by the Ministry of Higher Education in September 2021 further confirms the 'hybrid' teaching-learning context to remain in the next few semesters.

In the context of ODL, online learning is by far the most common approach in many higher education institutes (HEIs). Although online learning being an emerging trend to access quality education or a platform that provides educational aids and opportunities amidst the pandemic, the issues of 'digital divide' among the students are seen as a barrier to their online learning experience (Khairuddin et al., 2020). Even though most HEIs have taken the initiative to enhance students' learning experience, Khan and Jawaid (2020) have raised their concerns on its limitation since the cost is much higher to ensure a feasible and fair access to education. There is an urgent need to address these problems to create a more sustainable learning environment for students in the Malaysian tertiary education context, especially when "the workload of online classes is larger than the regular classes" (Rarkryan, 2020, p. 7) and the conservative learning models became irrelevant and lost their lustre. Needless to say, student factors such as their attitudes and readiness in borderless and flexible learning are in dire need of continuous investigations (Goh and Abdul-Wahab, 2020, p. 162). Thus, it is the scope of the present study to investigate the levels of readiness among the postgraduates in following online learning.

As the main purpose of the present study is to investigate the respondents' levels of online learning readiness, the study was guided by the following research objectives; to determine the postgraduates' level(s) of

- learning preference towards online learning
- self-directedness towards online learning
- a) technology skills and b) computer equipment capabilities for online learning

Literature Review

Online Learning at Tertiary Level

In March 2020, most HEIs in Malaysia had shifted their conventional lectures and tutorials online to curb the spread of the virus and have maintained a blended approach of online and face-to-face learning when the university re-opened for the new semester. Although most students at the tertiary level have endured almost two years of online learning in response to the COVID-19 pandemic, there is no clear end in sight for both students and faculty to return to the face-to-face classroom (Herman, 2020). Switching to online learning requires sufficient resources, advanced infrastructure, and acceptability that the higher education students' are lacking (Rarkryan, 2020).

The cancellation of examinations and restricted students' access to the universities due to the pandemic have forced students to soldier on with their mental and physical fatigue. Undoubtedly, online learning has now emerged as one of the many challenges that impact students' learning attitude and readiness. Although several online learning tools may serve as teachers and institutional assistants, some students have been confined to the negative thoughts that online learning brings no value and quality for future graduates (Herman, 2020). Nevertheless, to ensure the success of ODL, a prevalent issue needs to be addressed, primarily among the higher education students who face the threat of inequality at the best of times.

Students' Learning Attitude toward the Implementation of Online Learning

Online learning has been an influential mode of teaching and learning and its success depends primarily on students' learning attitudes. According to Khan and Jawaid (2020), many researchers and experts found the adversity of online learning as a significant problem especially when students did not believe they were supported, guided, or rewarded in the online learning program. Additionally, students' reluctance to transform and align with the paradigm shift in education reflects their cynical attitudes. According to Todd (2020), some students who possess a range of self-directed learning skills dare to inquire about things they barely understand, while the rest remain 'unheard' either in writing or via video responses. Consequently, students often perceive learning in an online mode to be particularly challenging, especially for courses that need hand-on experience, exercise and practices, for example, speaking and writing classes.

Prior to the pandemic, online learning has never been a favorable option in the standard mode of education. However, in recent studies, Khan et al (2021) have asserted that online learning has emerged as a practical solution to replace conventional teaching and learning, mainly when the pandemic necessitates containment and enforced isolation that impacts student-teacher and student-student interaction. Despite online learning being the ultimate goal to minimize students' learning gap that arises in response to national lockdown, Khan et al (2021) assert that factors such as students' interest in computers and adoption of online

learning, its effectiveness, and ease-ness are pertinent to be examined as these factors are vital to determine students' attitudes towards online learning implementation at the tertiary level.

The closure of HEIs nationwide has raised a significant challenge or concern for students to learn. As eloquently stated by Khan et al (2021); Ullah et al (2017), although this prevailing situation promotes virtual teaching and sets the new norm of teaching and learning, research findings have shown that students' degree of online learning adaptation is widely affected by their characteristics. According to Ismaili (2021), students' traits such as computer and internet self-efficacy, their skills, experience, easiness, and usability of online learning have a significant association towards their online learning attitude. Additionally, most past studies have identified these traits as the factors that impact students' interest in online learning, especially when its adaptation is time-consuming and difficult for many (Ullah et al., 2017).

For decades, students at the tertiary level in the Malaysian context were taught in a conventional teaching-learning methodology (Adams et al., 2020). Therefore, the paradigm shift to online learning has instilled an in-depth experience for the students with a low level of competency in technology, poor study skills, strategies, low motivation, and an inability to work independently (Ullah et al., 2017). In placing more emphasis, Ismaili (2021) claimed that the uncertainty of online learning, exams, graduations, or other significant learning activities requiring face-to-face meeting, sufficient skills and accessibility to the internet have influenced students' attitudes and willingness to engage in online classes.

Students' Learning Readiness toward the Implementation of Online Learning

The sudden shift to a new norm in education has resulted in longstanding inequities borne among the vulnerable students especially those who are unprepared or with a low degree of concentration and eagerness to learn, remotely. It should be noted that the absence of online learning readiness among students is among the unprecedented challenges to quality education. As Dangol and Shrestha (2019) point out, every effort to maintain the fairness, feasibility and quality in education by the institutions becomes meaningless due to lack of students' readiness in learning. Torun (2020) infers that online learning readiness is regarded as a skill and ability as it ensures the quality of learning and benefits students on many levels. However, he further confirms that to master these particular skills needed for online learning in the era of the COVID-19 pandemic is not an easy feat.

The concept of online learning readiness was suggested in 1998, which coincide within the three e-readiness dimension namely, student preferences in remote learning programs as opposed to traditional classrooms, students' confidence in utilizing technology and their capabilities to equip themselves with autonomous learning (Warner, Christie, & Choy, 1998). These dimensions are often parallel to students' comfortability and self-management towards online learning programs.

As the educational landscape has switched to digital, online learning takes its center stage to ensure learning never stops despite the physical distance. However, in an observation-based studies by Bovermann, Weidlich, and Bastiaens (2018); Gast (2018), their findings have shown a high drop-out rate among students who possess low online learning readiness due to the rigorous demands of online learning. Additionally, Goh and Abdul-Wahab (2020) revealed

that the concept of 'readiness' in learning is a significant predictor for students to achieve success in online learning. Before the emergence of the pandemic, it was a known fact that online learning is not widely practiced in HEIs in Malaysia (Ismaili, 2020). Thus it is easily acceptable why students may have a lower degree of exposure and limited information on the accessibility features of online learning tools such as Teams and Zoom.

In placing more emphasis, Adams et al (2020); Williams (2015) claimed that the students' moderate level of online learning readiness could be achieved if only they possess sets of skills such as self-directedness, study habits, technical knowledge, or computer and internet efficacy. As contended by Torun (2020); Gast (2018), these skills are irrelevant to students trained with the conventional teaching and learning methods. Therefore, students may struggle to adapt to a virtual classroom as they have insufficient time to prepare, minimal access to high-speed internet, and a lack of technological competencies. HEIs should take a step forward by not only providing the students with basic skills but "preparing them to be ready for the technology race by being problem-solvers, being critical and analytical thinkers" (Goh and Abdul-Wahab, p.166) besides ensuring the quality and equal access to education among students at the tertiary level.

Methodology

A quantitative research design was employed in the present study. A set of questionnaire was adapted from two previous studies (Ullah et al., 2017; Williams, 2015). The items, format, and procedure of the instrument were derived and constructed in light of the present study's research questions. The instrument was also pilot-tested on a small group of target respondents and Cronbach Alpha value of .89 was obtained which enabled actual data collection to proceed. The questionnaire was distributed to 140 postgraduates who, at that time, had recently experienced online learning in the faculty. Data was analyzed using descriptive statistics. In determining the levels of each construct of online learning readiness, mean scores were determined. The interpretation of the range of mean scores was adapted from Oxford and Burry-Stock (1995) scale in which low level is ranged between 1.0 and 2.4, medium level is ranged between 2.5 and 3.4, and high level is ranged between 3.5 and 5.0.

The questionnaire consisted of two sections; Section A and B. Section A was designed to collect demographic information, which included gender, mode of program, and employment status. This section also enabled the researcher to identify the respondents' Information and Technology (ICT) accessibility and online learning experience prior to the pandemic. Section B on the other hand, consisted of closed-ended items which are measured using a 5-point Likert Scale with the highest value of 5 (strongly agree) and the lowest value of 1 (strongly disagree) to obtain information regarding the respondents' level of learning readiness towards online learning in terms of their a) learning preferences, b) self-directedness and c) technology skills and computer equipment capabilities. As stated, the three aspects are based on the work of (Warner et al., 1998).

Findings and Discussions

The data were organized and analyzed based on the study's research questions. Table 1 shows the respondents' demographic information and ICT background. Out of 140 respondents, 67.1% were females while 32.9% were males. The majority of the respondents were in the third semester (32.15%) and 70% of the respondents were in a full-time mode. The number

of respondents who were working full time (51.2%) is higher as compared to the respondents who were working part time and unemployed with 15% and 32.9% respectively. In terms of ICT background, the majority of the respondents had a good internet and technology accessibility at their current location of residence at 84.3 %, whereas, 13.6% of the respondents have inadequate access to the internet and technology. Most respondents had rated their computer literacy as good with 40%, followed by average with 36.4%. Also, the majority of the respondents claimed that they had no form of online learning before the enforcement of MCO with 78.6% as compared to the respondents who had online learning experience prior to the pandemic with 21.4%.

Table 1
Respondents' Demographic Information

	Items	Frequency (n = 140)	Percentage (%)
Gender	Male	46	32.9
	Female	94	67.1
Part	1	33	23.6
	2	37	26.4
	3	45	32.1
	4 and above	25	17.9
Mode of Programme	Full time	98	70
	Part time	42	30
Employment Status	Unemployed	46	32.9
	Part time	21	15
	Full time	73	52.1
Internet and Technology accessibility	Yes	118	84.3
	No	19	13.6
	Other	3	2.1
Computer Literacy	Weak	20	14.3
	Average	51	36.4
	Good	56	40
	Very good	13	9.3
Online Learning Experience	Yes	30	21.4
	No	110	78.6

In identifying the respondents' readiness towards online learning, three aspects were studied which are their a) learning preference, b) self-directedness and c) technology skills and computer equipment capabilities.

Responses to research question 1: What is the postgraduates' level of learning preference towards online learning?

From Table 2, the highest mean score, 4.21 (SD = .61) was obtained for item 'I learn best by figuring things out for myself' followed by item 'I like to learn in a group, but I can learn on my own, too' with a mean score of 4.20 (SD = .55). On the other hand, the lowest mean score was obtained for item 'I am willing to send e-mail to or have discussions with people I might never see' and 'I learn pretty easily via online learning' with scores of 3.93 (SD = .98) and 3.21 (SD = 1.26) respectively. The other mean scores were in the range of 3.97 to 4.03. The overall mean score is 4.07 (SD = .49) depicting a notion that the respondents' learning preferences for online learning were within the high level (>3.5 to 5.00) based on the Oxford and Burry-

Stock (1995) scale. The finding has indicated that the respondents had a high level of learning preference in the online learning context.

Table 2
Respondents' learning preference towards online learning

Learning Preference	N	Mean	Std. Deviation
I learn pretty easily via online learning	140	3.21	1.26
I can learn quickly from things I hear, like online lectures, audio recordings, or podcasts	140	3.97	.72
I have developed a good way to solve problems I've run into via online learning	140	4.03	.62
I learn best by figuring things out for myself	140	4.21	.61
I like to learn in a group, but I can learn on my own, too	140	4.20	.55
I am willing to send e-mail to or have discussions with people I might never see	140	3.93	.98
Learning Preference	**140**	**4.07**	**.49**

Responses to research question 2: What is the postgraduates' level of self-directedness towards online learning?

As seen in Table 3, the highest mean score 4.23 (SD = .57) was obtained for item 'I do not quit just because things get difficult' followed by item 'I can keep myself on track and on time' and 'I finish the project I start' with a mean score of 4.07 (SD = .78) and 4.03 (SD = .89) respectively. On the other hand, the lowest mean score was obtained for items 'I am good at setting goals and deadlines for myself' and 'I have a good reason for taking an online course' with scores of 3.97 (SD = .85) and 3.63 (SD = 1.09) respectively. The overall mean score of 3.99 (SD = .58) indicates a high level of self- directedness as depicted in the interpretation of the Oxford and Burry-Stock (1995) scale.

Table 3
Respondents' self-directedness towards online learning

Self-Directedness	N	Mean	Std. Deviation
I am good at setting goals and deadlines for myself	140	3.97	.85
I have a good reason for taking an online course	140	3.63	1.09
I finished the project I started	140	4.03	.89
I do not quit just because things get difficult	140	4.23	.57
I can keep myself on track and on time	140	4.07	.78
Self-Directedness	**140**	**3.99**	**.58**

Responses to research question 3: What are the postgraduates' level of a) technology skills and b) computer equipment capabilities for online learning?

As indicated in Table 4a, the highest mean score 4.43 (SD = .63) was obtained for item 'I am comfortable surfing the Internet' followed by item 'I am comfortable with things like doing searches, setting bookmarks, and downloading files' with a mean score of 4.37 (SD = .56). On the other hand, the lowest mean score was obtained for item 'I know someone who can help me if I have computer problems' and 'I am comfortable with things like installing software and changing configuration settings on my computer' with scores of 3.90 (SD = 1.03) and 4.13 (SD = .97) respectively. The overall mean score of 4.23 (SD = .66) depicts a notion that the respondents' technology skills were within the high level (>3.5 to 5.00), as demonstrated based on the Oxford and Burry-Stock (1995) scale.

Table 4a.
Respondents' technology skills for online learning

Technology Skills	N	Mean	Std. Deviation
I am pretty good at using the computer	140	4.33	.71
I am comfortable surfing the Internet	140	4.43	.63
I am comfortable with things like doing searches, setting bookmarks, and downloading files	140	4.37	.56
I am comfortable with things like installing software and changing configuration settings on my computer	140	3.90	1.03
I know someone who can help me if I have computer problems	140	4.13	.97
Technology Skills	**140**	**4.23**	**.66**

From Table 4b, it can be seen that the highest mean score 2.79 (SD = 1.32) was obtained for item 'I have access to a computer with virus protection software on it' followed by item 'I am connected to the Internet with a fairly fast, reliable connection such as DSL or cable modem' with a mean score of 2.67 (SD = 1.35). On the other hand, the lowest mean score was obtained for item 'My computer runs reliably on Windows or on Mac OS X' and 'My browser will play several common multimedia (video and audio) formats' with scores of 2.31 (SD = 1.25) and 2.47 (SD = 1.34) respectively. The overall mean score of 2.54 (SD = 1.09) depicts a notion that the respondents' computer equipment capabilities were within the medium level (>2.5 to 3.4), as demonstrated based on the Oxford and Burry-Stock (1995) scale.

Table 4b
Respondents' computer equipment capabilities for online learning

Computer equipment capabilities	N	Mean	Std. Deviation
My computer runs reliably on Windows or on Mac OS X	140	2.31	1.25
I am connected to the Internet with a fairly fast, reliable connection such as DSL or cable modem	140	2.67	1.35
I have access to a computer with virus protection software on it	140	2.79	1.32
I have headphones or speakers and a microphone to use if a class has a video conference	140	2.48	1.41
My browser will play several common multimedia (video and audio) formats	140	2.47	1.34
Computer equipment capabilities	**140**	**2.54**	**1.09**

Generally, the results indicated a high level of online learning readiness among the respondents. As the technology skills dominate the mean scores (mean = 4.23), it is revealed that the respondents had employed adequate technical skills. According to the findings obtained, the majority of the respondents were good at using the computer and comfortable surfing the internet. Based on these findings, the respondents had equipped themselves with technical support in online learning deliveries especially in basic computer skills and utilizing online learning tools to enhance learning. In an observation-based study by Adams et al. (2020), it was indicated that technical skill is predominant in online learning, mainly when it ensures students' willingness to participate in learning activities.

Although it is expected that the respondents had a lower level of learning readiness due to their ICT background, the findings however have revealed a high mean score on learning preference towards online learning (mean = 4.07) and self-directedness towards online learning (mean = 3.99). Wei and Chou (2020) assert that students' learning readiness corresponds to their learning preference. Todd (2020) supports this finding as claiming that online learning had improved the students' online skills, primarily when they work individually.

It was also discovered that despite the fact that 78.6% of the respondents had no online learning experience, most of the respondents had demonstrated high level of self-directedness (mean = 3.99). Therefore, the findings have proven that self-directed learners could meet their own learning needs at their own pace and in accordance with their existing knowledge despite the new paradigm in teaching and learning in response to the COVID-19 pandemic. Khan and Jawaid (2020) stated that online learning is a difficult endeavor for many, primarily among teacher-centred learners. However, the respondents in the study illustrated such adversity in a new educational paradigm could be overcome through their learning preference and self-directedness, which coincides with Knowles' (1976) theory of SDL. This finding has shown the students' potential to quickly adapt to online learning and therefore achieved the highest level of learning readiness by getting acquainted with sufficient skills for online learning.

Nonetheless, based on the respondents' computer equipment capabilities, the study has revealed that they were facing troubles with several aspects. The findings indicate that the respondents' technical devices such as the computer did not run reliably on Windows or on MAC OS X, including the browser that was not synchronous when it played several common multimedia (e.g., video and audio) formats. According to Ismaili (2021), reliable computer equipment is often perceived as a key factor to avoid disruption when online learning occurs. In addition, capabilities to handle such equipment play a predictive role in measuring the students' readiness to learn. In this study, this factor has emerged as a setback to students, especially when online learning demands for reliable equipment or devices. Concurring this statement, Torun (2020) analyzed that lack of capabilities to handle such equipment and sudden file disruption often affects students' readiness and performance in online learning.

Implications and Conclusion

The purpose of the study was to investigate postgraduate students' learning readiness towards the implementation of online learning during the pandemic. The data revealed that it is imperative for the educational stakeholders, Ministry of Higher Education (MoHE) in particular and the top management of the higher education institutes to address the predominant issues as there is still 13.6% of the respondents facing difficulties in terms of access to education in a new educational paradigm. The findings have shown that there are still concerns that online learning may not have been a feasible substitute for face-to-face classrooms. This is primarily due to inadequate access to infrastructure (hardware and software), lack of curricular guidelines, and preparation among students for the high demands that online learning poses (Khan and Jawaid, 2020).

The study has also revealed how crucial it is to support students in utilizing technology effectively to ensure they are making the most of a new approach in learning despite the absence of course instructors from the learning scene. Besides, students' level of learning readiness were influenced to a great degree by the technical support they have received, which will maximize their ability to make the most of online learning opportunities. In the present, the education system should aim to strengthen the engagement between students and technology, especially in supporting students on the use of digital resources for pedagogical practice to ensure online learning is leveraged effectively.

Conclusively, the implementation of online learning in HEIs is not a favorable decision but inevitable in the new paradigm for teaching and learning. As traditional classrooms appeared to be dispensable (Ismaili, 2021), the learning readiness of most students to engage in online learning in the post-COVID-19 pandemic was deemed essential factors to be analyzed. The study has revealed the varied postgraduates' readiness of online learning as it depends on their accessibility to technology and computer equipment capabilities. Although the pandemic has provided students with technological skills as part of their learning, the sudden shift to the new norm in education has resulted in the long-standing inequities borne among vulnerable students. For many, mastering the skills needed for online learning amid the pandemic is not an easy move particularly in securing relevant computer equipment capabilities.

The present study has addressed these predominant pedagogical issues that may assist the educational stakeholder in reforming education that fits into the students' needs. In return,

students will be convinced of the values of incorporating technology into their learning practices (Khan and Jawaid, 2020). As online learning is likely to last even beyond Malaysia reaching herd immunity, advanced development is required to ensure the teaching and learning practices in the new norm will not adversely affect both students and educational stakeholders in the long run.

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