Open and Online Distance Learning (ODL) Challenges During COVID-19: A Factor Analysis Among UiTM Students

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Abstract: In conjunction with the introduction of the movement control order (MCO) to help stop the spreading of the COVID-19 virus, academic establishments around the country have taken significant initiatives to make sure that their students could continue to learn through online mediums. Thus, students and educators must begin preparing their minds for alternative classroom instructions that do not involve face-to-face interactions. This shift has sparked anxieties about how school children and tertiary level students from various social and economic backgrounds will adapt to this new digital classroom setting. With the objectives to identify the challenges faced by UiTM students in adapting to the ODL mode at home and to examine the challenges faced by the students staying in three different localities; urban, sub-urban and rural, 1,931 students from all UiTM campuses answered a self-constructed online questionnaire. A descriptive analysis and analysis of variance (ANOVA) was conducted using IBM-SPSS version 24 software to analyse the data. The findings revealed that while most of the students did not face significant problems on the infrastructure aspect, students from rural and sub-urban areas faced problems following the scheduled timetable provided by the university for online learning. Personal factors of family commitment, health, and other personal issues were found to affect their ODL session most. Since UiTM students' come from all over the country and from various family backgrounds, it is expected that the findings would enable the university administrators to better understand the challenges faced by the students, thus implementing effective and efficient learning environment that suits and supports the diversity of the students should there be a need for an ODL mode in similar outbreaks in the future

Keywords: *Challenges, Open and Online Distance Learning, Urban, Sub-urban, Rural*

1. Introduction

The emergence of Covid-19 pandemic in the later part of 2019 which took the whole world off guard and forced everyone to a new way of living, has also affected the educational institutions worldwide. To keep the teaching and learning process ongoing and not disrupted, academic establishments need to partially or wholly switched to online learning mode [1]. Despite of the many uncertainties and anxieties brought by the thought of adapting to the new norm, University Teknologi MARA (UiTM) progressively adopted

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Open and Online Distance Learning (ODL) for all its' campuses nationwide in April 2020 [2]. Being the largest higher institution in Malaysia, UiTM has a total of 169,364 students from various socioeconomic backgrounds [3]. Since this is the first time that the learning session would be conducted totally online by UiTM, it is critical to obtain basic information from the students such as identifying their concerns and problems while attending online classes. It is also crucial to conduct the study to ensure that ODL can be carried out properly and efficiently and the students could adapt to the new learning environment at their own home.

As stated by Ating [4], online learning approach in Malaysia still face lots of challenges despite of the fact that Malaysia's technology literacy rate for the age group of 15 years and above is at 95% due to the reason that online learning is not fully implemented as in a more developed country. Therefore, this research was conducted to investigate some of the problems and challenges that might be encountered by these students while attending classes online. Kellin Wong, a caretaker of Universiti Malaysia Sabah (UMS) student representative council, mentioned that eventhough online learning were already in place even before the pandemic, a full switch to online learning would come with certain challenges [5]. In another statement, Saifully Baiduri, president of Gabungan Mahasiswa Islam Se-Malaysian (Gamis) also stated that the limited internet access and poor internet coverage especially in rural areas are the main concern and expected long-term effect of students affected by these problems would most likely be stress issues, increased depression occurrences which would then made them give up with their studies, leaving bad remarks on their education journey [5]. Therefore, in ensuring that the students' performance and wellbeing are not being badly affected should online learning be infinitely prolonged, even after the pandemic has turned into an endemic, the researchers find it imperative to identify the challenges faced by UiTM students during the ODL mode and to further examine the challenges faced by these students who were stationed at their own home located in three different localities: urban, sub-urban and rural areas.

2. Literature Review

Open and Online Distance Learning (ODL) in Malaysia

Ever since the Malaysian government decided on the implementation of MCO starting March 2020, all public and private universities strove to ensure that the students were able to continue their learning process even during the peak of the Covid-19 pandemic. Most educational institutions are concordant with the idea of shifting the conventional classroom setting to an online learning environment to facilitate the learning process. This is because online learning is a type of learning where learning experiences occur in synchronous or asynchronous environments using different resources such as mobile phones and laptops where there is internet availability [6].

According to Abdol Razak et.al. [7], during the COVID-19 pandemic, the adoption of ODL mode in most Malaysian university courses was described as completely "transparent" and "remote distance," with no face-to-face interactions between students and lecturers in the teaching and learning processes. Their study, which involved 99 university students who were studying at diploma level in Perak, revealed that ODL students had more challenges and had a tougher time than students who used a hybrid learning method because students and lecturers could only engage digitally. Despite being full-time students, they experienced the same obstacles as part-time students because they lived with their families and were disconnected from their classmates and university lecturers. Staying at home made the ODL students distracted by their everyday household routine, inconvenient learning environment, as well as lack of support from family members, which later led to procrastination [7]. This was concurred by other scholars who found that since there is less competitiveness and engagement with lecturers and peers, most students have lack guidance to oversee their learning process, have a difficult time becoming independent, and experience lack of motivational reasons to keep trying and complete the study [8], [9].

In principle, not having physical lessons and face-to-face activities on campus grounds may seem idealistic, since it reduces the probability of Covid-19 exposure and spread by avoiding crowds, maintaining social distancing and allowing students to learn from homes. Yet, many literatures have shown that motivation, internet coverage, learning environment and workload stress are among the most commonly reported challenges suffered by both students and lecturers during the past two years of ODL [5].

Challenges and Problems Faced by Students During ODL

One preliminary online study was conducted by Ismail et al., (2020) in Universiti Sultan Zainal Abidin Malaysia (UniSZA) which investigated the challenges and problems students may experience while trying to cope with the new norm. Involving 542 participants, the findings indicated that the majority of the students was not ready for online learning as the main challenge faced was low internet access to enable them to participate in online learning [10]. Among the internet issues identified included slow internet bandwidth or no Wi-Fi connectivity at certain times (79.3%), deficiency of IT devices, particularly a laptop or computer

(8.9%), not enough online reading materials (14.4%) and online method's effectiveness (8.1%). Other participants mentioned family issues, a deficiency of ICT proficiency, medical conditions, and having an educational environment that was not conducive as major obstacles to participate effectively in online learning [10].

This sentiment is also shared by Chung et al. [11], who conducted a study among 91 students in UiTM Sarawak to determine their students' readiness to learn online. By adopting Online Learning Readiness Scale (OLRS), they distributed questionnaire containing 18 items, focusing on students' "computer and internet self-efficacy, self-directed learning, learner control, motivation for learning and online communication self-efficacy" [11]. According to this study, students' competency for computer and internet self-efficacy was high, mediocre for self-directed learning and motivation for learning, and poor for learner control. Students' largest issue, however, was poor internet accessibility. Nevertheless, the most common complaint about poor internet connectivity during the MCO was mostly attributed to increased demand as well as infrastructure constraints [11].

Sarkar et. al. [12] also concur with this finding as the research they conducted also revealed similar results. They conducted an online survey among the students at Islamic University in Kushtia, to investigate students' attitudes about online learning during the COVID-19 pandemic in Bangladesh. The findings revealed that the majority of students struggled to participate in online classrooms and were unable to interact effectively with their classmates. They also claimed to encounter difficulties in online learning, with the majority of students preferring traditional learning methods to online learning and finding it difficult to comprehend the topics taught in online classroom [12].

Several literatures claimed that some of the significant problems of conducting lessons online were internet access, anxieties about online and distance learning, educational environments that was not conducive, and incompetency of digital skills [10], [11], [13]. With the understandable challenges stated by the participants, these are ample proof of students' lack of readiness for online and distance learning mode.

Localities Factor

When it comes to defining the demographic of the communities in a nation, rural, suburban, and urban are the most commonly used ways to describe a geographical area based on its population. Salazar [14] emphasized that in the U.S:

Rural areas are open and spread out. This is countryside where farming and natural resources are predominantly used

for family income. These people travel to cities for medical care and any other basic living needs. Suburban areas are outlying single-family housing areas that are surrounding larger cities and metropolitan areas. Typically, they don't have a system of politics; however, some do have medical services and smaller shopping areas. Urban areas contain a high population where there are more than 1,000 people per block. Urban areas are very congested and have political autonomy along with any living resources needed (para. 4).

The terms urban, sub-urban and rural are defined in different definitions in different countries. According to Department of Statistics Malaysia Official Portal (2020), urban areas are "built-up areas were contiguous to a gazetted area and had at least 60% of their population (aged 15 years and above) engaged in non-agricultural activities" (para 3). Urban, on the other hand, is defined as "areas with population less than 10,000 people having agriculture and natural resources in which its population either clustered, linear or scattered" [15]. Meanwhile, sub-urban is more commonly defined as "low-density housing areas outside than the existing city boundary" [16].

With the rapid development of internet starting the early 1980s, all nations in the world, regardless of developed or developing countries, strive to meet the goal of closing the technology gap between urban and rural communities. Malaysian government too, since the beginning of digital application first implemented in the 90s, has aspired to grant its citizens the privilege to obtain information without constraints. According to Economic Planning Unit (2010), the internet was identified by the Malaysian government as one of the essential aspects in the 10th Malaysia Plan, which was developed to pursue the government's objective of transforming Malaysia into a developed socioeconomic country by 2020 [17]. However, according to Sahharon et.al. [17], the Malaysian government's ongoing and continual implementation of information technology infrastructures is still unable to close the country's digital disparity. They also claimed that:

Although the broadband subscriptions and the internet penetration rate in Malaysia is steadily prospering from 2013 to 2014 with 67.3%, the gap between its household internet use by the urban and the rural area is still clearly visible. The internet penetration rate of the urban households has reached 75.8% compared to only 24.2% of the rural households" [17].

Due to their topographical location, several parts of Malaysia have inadequate internet connectivity. Conducting classes online is extremely reliant on internet connectivity and it is incredibly strenuous if the internet access is not satisfactory. With the pandemic spread, the main obstacle is that education will not be conventional in critical situations, and technology itself will not be able to fill the learning gap, particularly in regions like rural areas, where pupils have

limited access to the same resources [18], [19]. There is a significant lack of internet access, particularly for students living in remote areas where the internet connection is really poor and that reaching the students by phone is also challenging and troublesome. Moreover, Burgess & Henrik (2020) claimed that students in remote areas who do not have access to online learning are more likely to worsen the educational gaps.

In conjunction with this idea, Feizi and Bakhtiarvand [18] conducted a study among students of multi-grade rural education classes in Mahidasht region in Iran to investigate the main challenges of online learning experienced by students in that area. These students had no prior experience with online education and were suddenly confronted with a situation that was frightening to many of them [18]. Jordan et.al. [19] also found similar findings in their study, as the study revealed that pupils in rural schools have difficulty taking advantage of the educational system and teachers' e-learning platforms. The digital sharing in this area does not imply widespread internet and mobile network connectivity for all. People with access to the internet have an easier time learning, and many pupils, particularly in rural regions, lack access to the internet. They also may not have access to electricity. Others have basic cell phones but not smartphones and some lack high-speed Internet access. Many students learned with the help of their parents' smartphones [19].

Based on what has been discussed and considering the ongoing concerns about the spread of the pandemic and closing of schools, it is vital to investigate the issues of online learning as the only option available to students and instructors, as well as the challenges that have been highlighted. However, there is still a small number of literatures on challenges in terms of different localities done in Malaysian context. Therefore, the aim of this research is to find out the challenges faced by UiTM students during ODL mode at home and to examine the challenges faced by these students who stayed at three different localities: urban, sub-urban and rural areas.

3. Research Methodology

A total of 1,931 students of Universiti Teknologi MARA (UiTM) who enrolled in the Open and Online Distance Learning (ODL) mode during COVID-19 pandemic outbreak were involved in the study. All of them participated on a voluntary basis by answering a set of questionnaires via online survey. Self-constructed questionnaire was used in the study which was divided into two parts; Part A which consisted of respondents' background questions and Part B which consisted of challenges during ODL mode questions (10 items). The five-point interval scale ranging from 1 (strongly disagree) to 5 (strongly agree) has been used in Part B. Therefore, factor analysis was conducted to identify the number of components that may be obtained from self-constructed questionnaires of challenges during ODL mode.

Factor Analysis and Reliability Analysis

A proposed 10-items questionnaire was analysed using factor analysis. Before the results of the factor analysis were accepted, several conditions in factor analysis were investigated. Firstly, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.746 and Bartlett's Test of Sphericity was statistically significant (p-value < 0.000). These results implied that factor analysis was appropriate since the correlation matrix was not an identity matrix. Furthermore, the Anti-Image Correlation Matrices ranged from 0.621 for item 10 to 0.907 for item 6 in measuring the sampling adequacy for each variable which clarified that all the values were well above the bare minimum level of 0.5.

Factors were extracted using the principal component analysis method and an orthogonal rotation using Varimax with Kaiser Normalization was applied on the initial factors since there was no theoretical basis that the factors were correlated. Two interpretable factors were obtained from the analysis using Kaiser's criterion of retaining factors with eigenvalues greater than one, and two items were dropped due to low factor loading. The two interpretable factors accounted for 39.12% and 24.54% of the variance in the data for a total of 63.66% before the rotation. Meanwhile, after the rotation, the two interpretable factors accounted for 38.79% and 24.87% of the variance in the data. The items were arranged according to the two constructs and their themes together with their factor loadings as shown in Table 1.

Table 1: Rotated Factor Matrix

Challenges	Factor loadings	
	1	2
Factor 1: Infrastructure		
Studying-learning device is sufficient.	.793	
Studying-learning device is in good condition.	.812	
Internet connectivity/ access is good.	.805	
Internet data is sufficient.	.805	
Proper studying-learning space is available.	.711	
Factor 2: Personal		
Family commitment does not affect online distance learning.		.740
Health issues do not affect online distance learning.		.842
Personal issues do not affect online distance learning.		.853

The questionnaire constructed from the factor analysis was then subjected to a reliability analysis which measured the internal consistency of the items and item-total correlations whereby the Cronbach's Alpha value obtained must exceed the required level of at least 0.7 [21], [22]. The reliability analysis showed that the two constructs (infrastructure = 0.843, personal = 0.745) were found to have acceptable reliability.

This study has two objectives; 1) to identify the challenges faced by UiTM students during ODL mode at home and, 2) to examine the challenges faced by the UiTM students between three different localities; urban, sub-urban and rural. Therefore, descriptive analysis and analysis of variance (ANOVA) were conducted using IBM-SPSS version 24 software as data analysis method to achieve the research objectives.

4. Results and Discussions

A total of 341 (17.66%) males and 1590 (82.34%) females aged between 18 to 53 years old were involved in the study. Majority of them was from the urban areas (924, 47.85%) followed by rural areas (507, 26.26%) and sub-urban areas (500, 25.89%). According to their home locality for teaching and learning process during the ODL mode session and the COVID-19 pandemic outbreak, the students especially from the rural and sub-urban areas faced problems in following the scheduled timetable provided by the university.

The following Table 2 showed the mean score of each challenge faced by the students during the ODL mode. On average, the students did not face any critical issues on the infrastructure factor including studying-learning device, internet connectivity, internet data and studying-learning space, since the mean score obtained is more than 3.00. In contrast, previous studies [5], [11], [13] found that internet connectivity becomes significant issue among students during ODL. Furthermore, previous study among 542 UniSZA students during ODL also revealed that internet connectivity in poor condition becomes most challenging factor for them followed by insufficient devices [10].

Table 2: Descriptive Statistics of Challenges during ODL mode

Challenges	Mean (M)
Factor 1: Infrastructure (C1)	
Studying-learning device is sufficient.	3.74
Studying-learning device is in good condition.	3.83
Internet connectivity/ access is good.	3.43
Internet data is sufficient.	3.45
Proper studying-learning space is available.	3.43
Factor 2: Personal (C2)	
Family commitment does not affect online distance learning.	2.28
Health issues do not affect online distance learning.	2.49
Personal issues do not affect online distance learning.	2.26

On the other hand, the personal factor contributed less than 3.00 meant that family commitment, health, and other personal issues did affect their ODL session the most. As in line with Abdol Razak et.al. [7], personal issues such as household routine and lack of support from family members contributed serious problem for students to learn while staying at home. In addition, Ismail et.al. [10] also found that medical condition and family issue also influenced students' participation in ODL even though they were not classified as serious problems. The analysis continued with the descriptive analysis of each challenge based on three different localities: urban, sub-urban and rural, as shown in Table 3.

Table 3: Descriptive statistics of challenges during ODL mode by locality

Challenges	Mean (M)		
	Urban	Sub-urban	Rural
Factor 1: Infrastructure (C1)	**3.70**	**3.55**	**3.37**
Studying-learning device is sufficient.	3.81	3.73	3.61
Studying-learning device is in good condition.	3.90	3.80	3.72
Internet connectivity/ access is good.	3.65	3.38	3.08
Internet data is sufficient.	3.64	3.46	3.11
Proper studying-learning space is available.	3.51	3.39	3.33
Factor 2: Personal (C2)	**2.35**	**2.33**	**2.33**
Family commitment does not affect online distance learning.	2.27	2.29	2.26
Health issues do not affect online distance learning.	2.49	2.51	2.49
Personal issues do not affect online distance learning.	2.30	2.20	2.24

Descriptive result from Table 3 showed that on average, students from urban areas (M = 3.70) had better infrastructure compared to sub-urban (M = 3.55) and rural (M = 3.37) areas. As stated by Jordan et.al. [19], students from rural areas have difficulties to join online classes because of insufficient device and internet access. The result of the infrastructure factor is consistent with the personal factor which meant that on average students from urban areas (M = 2.35) have fewer personal issues during ODL compared to others.

4. Conclusion and Recommendation

Being the largest public university in Malaysia with 13 campuses to boot, it is a known fact that UiTM students' who come from all parts of the country, also come from various social and economic backgrounds. Based on the findings, the study concluded that the majority of the students who willingly answered this questionnaire online during the ODL mode was from the urban areas and the challenges faced by these students during the ODL mode was more on the personal factors of family commitment, health, and other personal issues instead of the infrastructural factors. Interestingly, they were also the ones who have fewer personal issues during ODL compared to those coming from the sub-urban and rural areas. The study also concluded that students from rural and sub-urban areas faced problems following the scheduled timetable provided by the university for online learning. However, no further information was gathered on the reasons for the problems from these respondents. Thus, the researchers see the need for a future study on personal factors as one of the challenges during ODL session among students since most previous studies focused on the infrastructural factor. The findings could bring about a more comprehensive understanding on the problems faced that might affect the overall academic performance of the respondents.

In conclusion, it is of utmost importance for the university administrators to note on the findings of this study and better understand the challenges faced by the students, thus implementing effective and efficient learning environment that suits and supports the diversity of the students. Though the pandemic situation in Malaysia has recently shifted to an endemic phase, it is believed that the findings is significant to the university administrator in preparing for the support system needed, which in this case, is more of emotional and psychological support than infrastructural by its' students should there be another need for an ODL mode if similar outbreaks happen in the future.

5. Acknowledgements

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