Challenges of home learning during movement control order among UiTM Pahang students

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Abstract. Due to the COVID-19 pandemic, the enforcement of the Movement Control Order (MCO) by the Malaysian government since March 2020 significantly impacted many sectors such as the economy, society, and others. MCO enforcement has made Malaysians spend most of their time staying at home, and even some have lost their income source. Another sector that has been greatly affected is the educational sector. Today’s landscape of education has changed dramatically with the phenomenal rise of virtual classes from home. Learning and teaching processes are undertaken remotely and on digital platforms to curb the spreading of the virus. This situation has affected the lesson and learning process from home to many of the several students in Malaysia. Therefore, this study investigates the challenges of home learning during MCO among students in the Universiti Teknologi MARA (UiTM) Pahang Branch. A simple random sampling technique was used to distribute the online survey questionnaires, involving a sample of 213 students. Besides, a descriptive statistic was used to study the students’ demographic characteristics according to the challenges. In contrast, logistic regression analysis was used to determine the factors associated with home learning challenges during MCO. Based on the findings, most male and female students were not well prepared for home learning during MCO, with a percentage of 71.60% and 69.70%, respectively. As a result, 79.81% agreed that home learning is more stressful than the physical classes on the campus. In comparison, 79.63% of Social Science and 83.02% of Science and Technology students claimed that the workload given is way more significant during online classes. Furthermore, this study concludes that the most associated challenges of home learning faced by the students during MCO are the abundance of workload and loss of interest in the subject.

1. Introduction
In the mid-1990s, the implementation of online learning has started to bloom in several geographic regions [1]. With the fast technological advances, online education has grown, and virtual class enrollment increased [2]. Massive Online Open Course (MOOC) was then introduced, subsequently impacted the rise of research in various aspects of online education and its involvement [3]. However, most schools and universities still do not accustom to this virtual class mode. The evolution to a new
atmosphere of education requires careful instructional design and planning. According to Louwrens and Hartnett [4], three key components help students be motivated in virtual learning: practical orientation on cognitive, emotional, and behavioural engagement.

The world is currently responding to a novel coronavirus disease officially named COVID-19 by the World Health Organization (WHO). The virus originated in China in December 2019 and rapidly reached the pandemic level that affects countries globally. The need to avoid interactions between people and keep physical distance has directed many countries to propose rules and recommendations to stay at home. The government's enforcement of the Movement Control Order (MCO) has resulted in the closure of schools, colleges, universities, and educational institutes worldwide. Consequently, there has been a massive transition from the traditional face-to-face classroom to online teaching and home learning [5].

The intense public discussion on how the education system parties cope with the rapid change began to rise. The learners or students reported being emotional in online and home learning. They struggle to create the most pleasing home learning environment over suddenly changed circumstances. In line with MCO’s execution, works must be conducted remotely from home. Subsequently, instead of the challenges related to technology use on enabling the home learning setting itself, students are also juggling with other home daily tasks and routines.

This study aims to identify the challenges of home learning during MCO by students of the Universiti Teknologi MARA (UiTM) in Pahang and determine the obstacles influencing students’ preparedness for home learning during MCO. Throughout the study, there are six factors selected to test for the logistic model, including (1) either the home learning is more stressful than the regular classrooms, (2) online classes have more significant workload than the regular classes, (3) lack of devices and internet access, (4) need of socio-emotional support, (5) loss interest toward the subject and (6) complexity to avoid the distractions during the learning period.

2. Literature Review

2.1 Advantages of Online Learning

The use of technology among Malaysian universities in teaching and learning has started since the 1990s [6]. The technology and internet are mutual pair since they are dependent on each other. The existence of the internet has enabled online learning to be conducted. Online learning is defined as the internet-based programme in which the materials are shared online with virtual interaction among students and lecturers [7]. Online learning is crucial in this era, besides physical class [8], and its implementation is cost-effective [9].

Besides having the opportunity to learn at their own pace, online learning also promotes higher-order thinking skills and interaction among students [10][11]. Students are more connected to their friends when performing tasks via online learning than seeking assistance from their peers [12]. Through online learning, students acquire independent learning skills and life-long learning skills [13]. As online learning has unique functionality and accessibility [14], it provides freedom in learning as students can connect with their lecturers anywhere and anytime [15].

However, online learning was found to have higher dropout rates than physical learning [16]. The readiness of Malaysian students on online education is found to be still low [17].

2.2 Challenges of Online Learning

The spread of COVID-19 has affected many sectors such as the economy, culture and tourism, and education [18]. The sudden change of the physical learning environment into online education has caused interruption among students and affected educators and institutions [19]. In the end, the quality of education is affected very much [20]. The low level of acceptance towards this shift has become one of the main reasons students find online learning challenging [21].

Some challenges students experience during online learning identified from previous studies are poor internet connection [22][23][24], unavailability of access to proper devices [25][23], overloaded assignments [26][27], lack of focus [28][29] and time management [23][30][31].
Adeyinka-Ojo and Ikumoro [23] also found that students need a conducive environment at home to survive the online class. This research is supported by Katherine and Dubravka [32] that students prefer going to the library because of its comfortable environment suitable for learning. Besides, lack of interaction with friends has caused students’ motivation to diminish from day to day [33][27]. Ajmal and Ahmad (2019) suggested that educators must consider students’ ability to perform the tasks in online distance learning (ODL) activities as they are not able to interact physically with friends and lecturers [34]. Although they can use various platforms, they still feel less connected to their friends and lectures [35].

A study by Daniel [36] points out that students who have missed the ability for peer contact have experienced psychological problems such as stress, anger, frustration, anxiety, sadness, loneliness, and mental health due to online learning. During the COVID-19 pandemic, the unprecedented transition to online learning has raised questions about cybersecurity, cyberbullying, online abuse and exploitation by the challenges and complexities of online learning [36][37].

It is undeniable that students from poor socioeconomic groups would find it impossible to learn as quickly as possible because they rely on the free internet and devices. Some students may need to work part-time to gain extra money to pay bills and buy proper devices to support their online learning. Demirbilek [38] found that due to school and university closures, students' learning process is expected to be slow. Manfuso [39] research findings that human and pet interference is described as the unwanted arrival or disturbance of family members, acquaintances, or pets during the online teaching and learning process, which may trigger disruption or diversion of online learning students’ attention.

As previously mentioned, students have faced various challenges of online learning during MCO COVID-19. Educators, parents, university administrations, government support, and commitment must ensure online learning success in post-pandemic periods in developed societies. Hence, online teaching, learning tools and strategies need to be provided beforehand so that students can have the ability to advance their knowledge, experience and understanding of the various facets and complexities of online learning.

3. Methodology
This study was conducted as cross-sectional research, which involves analysing data obtained from a subset of the sample at a single point in time. A group of 213 students from five different programs were selected randomly among 16 programs offered in UiTM Jengka, Pahang as the respondents of this study. A descriptive statistics and logistic regression analysis were performed to analyse the data with the most accurate output that fits the objectives. The early stage of this study involves constructing a comprehensive literature review on the concerned topic. Next, a set of survey questions was finalised appropriately to the target group by including inquiries regarding the demographic characteristics and challenge factors of home learning during MCO. There are four categorical variables included under the demographic section: age, gender, the program enrolled, and their current semester. Meanwhile, the challenge factors section was formed as 6-points Likert-scale questions (from 1: strongly disagree to 6: strongly agree) that composed of seven questions; not well prepared through simulations or practices, more stressful than the regular classroom, the workload of online classes is more significant than of regular classes, lack of devices and internet access to participate in online classes, need socio-emotional support to face the pressure, loss of interest and seriousness toward the subject, and have difficulty in avoiding distractions during the learning period. After that, the data was collected once the survey questions were distributed among the students.

The data obtained was recorded and appropriately analysed by performing screening, exploring, and cleaning using software R. The frequencies and distributions of the data were determined. Data analysis was carried out by conducting descriptive statistics and logistic regression analysis. Besides, the data was explored involving descriptive statistics and illustrating graphs of each variable to explain the demographic characteristics of student’s location elicited on the home learning challenge factors during MCO. Then, the percentage and frequencies of categorical variables were identified. The significant factors of home learning challenges during MCO were determined using logistic regression.
Two possible qualitative outcomes resulted from the response variable of interest, either the students are well prepared or not for home learning during MCO. It is denoted by a binary indicator variable using values 0 (no), and 1 (yes) for each subject is “success” or “failure”. The $\pi(x)$ represents the “success” probability at value x. Thus, the logistic regression model has linear form for the logit of this probability, given by:

$$\text{logit}[\pi(x)] = \log\left(\frac{\pi(x)}{1 - \pi(x)}\right) = \alpha + \beta x . \quad (1)$$

The non-numerical data will be categorised into a dummy code which can be referred to as either agree (0) and disagree (1) for the first until the fifth factors. In contrast, disagree (0) and agree (1) for the sixth and the seventh factors. In variable selection, the method of automatic stepwise selection was used by performing both forward and backward stepwise. The relation between variable pairs from all variables in the main effects was studied more. A preliminary final model was attained at this stage before further analysis was performed to confirm the logistic regression model accuracy and predictive validity.

4. Results and Discussion

The result section will be discussed in two parts, which are descriptive statistics and logistic regression analysis. The descriptive section represents the demographic characteristics and home learning challenges during MCO in the frequency table and bar plot. The logistic regression analysis section describes the best model that fits the students’ preparedness for home learning during MCO with their challenge factors. The challenge factors associated with the student's preparedness for home learning during MCO and the model's accuracy were described in this section.

4.1. Descriptive Statistics

The descriptive statistics were performed using a frequency table and bar plot for demographic characteristics of the students and the challenges factors of home learning during MCO. Based on Table 1, most students are females, with a number of 132 (62%), while males are 81 (38%). Most of them are between 20 to 21 years old, which 111 (52%), currently in semester 1 to semester 3 with 200 (94%), and 159 (75%) from the field of science and technology. Figure 1 shows the preparedness level of students for home learning during MCO by gender. The majority of both male and female students are not prepared for home learning, with 71.60% and 69.7%. The result obtained is supported by [17], where they stated that the readiness of Malaysian students for online learning was still lower. This situation may be due to the sudden announcement made by the ministry of higher education. The learning and lesson process must be proceeded but only by the virtual mode.

The students also agree that the online classes are more stressful than the regular classroom with a percentage of 79.81%, plus 79.63% of social science and 83.02% of science and technology students claimed that the workload given is way more significant during online classes as depicted in Figures 2 and 3. By referring to the result obtained, many lecturers feel worried if their students would not have enough materials and practices to prepare themselves for examination. Also, the lecturers would not know whether their students would complete all the assessments given, thus giving them the materials, though they forget to consider the students' condition at home.
Table 1. Frequency table for demographic characteristics.

| Variables                  | N (%)  |
|----------------------------|--------|
| Gender                     |        |
| Male                       | 81 (38%)|
| Female                     | 132 (62%)|
| Age                        |        |
| 18-19                      | 102 (48%)|
| 20-21                      | 111 (52%)|
| Number of semesters        |        |
| 1-3                        | 200 (94%)|
| 4-6                        | 13 (6%)|
| Types of programme         |        |
| Science & Technology       | 159 (75%)|
| Science Social             | 54 (25%)|

**Figure 1.** The level of preparedness of students by gender. The red bar represents unprepared students, while the turquoise bar represents prepared students.

**Figure 2.** The level of students’ agreement for stressfulness of online classes by gender. The blue bar represents the student who agreed; the yellow bar represents the student who disagreed.
Figure 3. The level of students’ agreement for more workload of online classes by the programme.

Figure 4. The level of students’ agreement for lack of devices by the number of semesters.

Figure 5. The level of students’ agreement for loss of interest toward the subject by the programme.
Moreover, the unavailability of access to proper devices as stated by [23][25] is also aligned with the result depicted in Figure 4, where 134 students (63%) from semester 1 until 6 are lack devices to be utilised for online classes during MCO. Furthermore, most social science and science and technology students stated that they had lost interest and seriousness toward the subjects during the online classes with 159 (74.6%) students.

### 4.2. Logistic Regression Analysis

Logistic regression analysis is usually performed to model the probability of a particular existing class or event that possess a binary outcome. This study conducted a stepwise method in selecting the model, where the model from the smallest value of AIC with the estimated logistic model is chosen. Hence, it is noted as

$$\ln \left( \frac{\hat{p}}{1 - \hat{p}} \right) = -0.4449 + 0.7825x_1 + 1.2236x_2 + 0.7906x_4 - 1.6743x_5. \tag{2}$$

The coefficient value of all predictor variables as well as the \(p\)-value is tabulated in Table 2. The significant value is a \(p\)-value of less than 0.05. Variables that have a \(p\)-value of more than 0.05 are not considered as significant variables. According to the table, the greater workload during virtual classes and loss of interest toward subjects are the predictor variables with a \(p\)-value of not more than 0.05. This indicates that the students’ most associated home learning challenges during MCO are abundant workload and loss of interest in the subject. Moreover, this is supported by [16][26][27], where they claimed that overloaded assignment and lack of focus are some of the challenges experienced by students during online learning. Due to these factors, online education has higher dropout rates than physical learning [16].

From the \(\exp(B)\) value stated for these two associated factors, it can be concluded by the following findings:

1. The probability of the students being well prepared for home learning during MCO is three times if the amount of workload given to them is lessened.
2. The students’ probability of not being prepared for home learning during MCO is expected to increase by 80% if they lose interest in the subjects.

Furthermore, a likelihood ratio test was done on the model with significant independent variables to examine the overall model. The test indicated that the model is fit, as it gave the \(p\)-value of \(4.203 \times 10^{-15}\) less than 0.05. Besides, the \(R^2_{\text{Nagelkerke}}=0.7484\) describes that 74.84% of the total variation in students’ preparedness for home learning during MCO can be elucidated by a set of all four predictor variables.

| Variables                      | B   | \(\exp(B)\) | \(p\)-value |
|--------------------------------|-----|-------------|-------------|
| X1 (More stressful)            | 0.7825 | 2.1869      | 0.1107      |
| X2 (Workload)                  | 1.22236 | 3.3994      | **0.0140**  |
| X4 (Need socio-emotional support) | 0.7906 | 2.2048      | 0.0605      |
| X5 (Loss interest toward subject) | -1.6743 | 0.1874      | **0.0000**  |

\(a\) Value of coefficient  
\(b\) Exponential value of the coefficient

The accuracy of the model was further studied by classifying the proportion of observations accordingly. Confusion Matrix is a model accuracy testing method used broadly in describing a classification model performance on a data set with the known actual values. Table 3 illustrates the classification table with all predictor variables. According to the model obtained, 91.33% of the students...
were correctly classified as not prepared for home learning. In comparison, 55.55% of the students were correctly classified as designed for home learning during MCO. Hence, the overall model indicates that 80.75% of the sample was correctly classified.

Table 3. Classification table with all predictor variables.

|                | Predicted Not Prepared | Predicted Prepared | Percentage Correct |
|----------------|------------------------|-------------------|--------------------|
| Not Prepared   | 137                    | 13                | 91.33%             |
| Prepared       | 28                     | 35                | 55.55%             |
| Overall Percentage | 280                   | 48                | 80.75%             |

5. Conclusion and Recommendation
This study was focusing on the challenges of home learning during the MCO among UiTM Pahang students. Since the government announced that MCO would be implemented for the whole country, the higher institution also has been affected where all the teaching and learning activities have to be carried out through digital platform. As a precautionary measure, online classes through Google Classroom, Microsoft Teams, Zoom, Webex and other relevant medium have been used. The findings of this research are based on descriptive statistics and logistic regression analysis to analyse the data, which describes the challenges factors facing the current e-learning system.

Therefore, the universities policymaker, researchers, and educators can benefit from the findings to improve an appropriate e-learning system to help students learn. This study employed the online survey questionnaires approach involving a sample of 213 students and data analysis using software R tools. There were six factors selected to test for the logistic model, including (1) either the home learning is more stressful than the regular classrooms, (2) online classes have more significant workload than the regular classes, (3) lack of devices and internet access, (4) need socio-emotional support, (5) loss interest toward the subject and (6) difficult to avoid the distractions during the learning period.

This study found that the students are not well prepared for home learning. Students also stated that the level of stressfulness is higher where there was a burden with many workloads during the online classes compared to the regular semester. Besides that, the study also found that students' preparedness towards home learning increases if the workload is lessened. This might be due to the lack of a device to carried out the online classes from home. Therefore, if the teaching and learning process online must be continued for the next semester, it is good to ensure that the students' workload is lessened. Students may also need some students’ learning times to make sure they have enough time to study and focusing on finishing the workload given.

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