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Abstract
Online Distance learning (ODL) has changed the facade of teaching and learning during the Covid-19 pandemic. Educational institutions worldwide had to make drastic changes from the traditional Face to Face (F2F) method to going fully online and Malaysia was no exception. This paper shares findings of a research examining the anxiety levels experienced by tertiary students in a public university in ODL. 386 tertiary students from a public university were involved in this study. Methodology involved to select the sample is snowball sampling and the online survey as a data collection method. Zung's Self-Rating Anxiety Scale (SAS) questionnaire as a research instrument. Paired sample t-test and multiple linear regression was used to analyse the data. The objectives of the study was to examine differences in anxiety levels of students between F2F and ODL and to determine the factors that affect the anxiety levels during ODL . Results of the study revealed that the anxiety index of students during ODL is much higher than during physical learning (M = 52.57, SD = 13.74) compared to ODL (M = 56.74, SD = 13.16), t (385) = -9.388, p = 0.000. It was found that gender (b = 4.361, p = 0.005), age (b = 0.111, p = 0.03) and technology skills problems (b = 3.099, p = 0.035) affect the anxiety levels during ODL. Male students had fewer problems with technology and experienced a lower anxiety level compared to female students. In addition, students who are not familiar with computers and multimedia applications faced more anxiety than those who are familiar with it. As online learning seems to be the new norm in education today, it is recommended that students are exposed more to learn applications and software to reduce their level of anxiety. Future studies should examine physical and mental readiness for ODL as well as the role of institutions in facilitating ODL for their students.
Keywords: Anxiety Index, Challenges, Online Learning, Physical Class, University Students.

Introduction

COVID-19 is a disease caused by a new coronavirus strain. The signs CO stand for corona, VI for sanitized, D for disease. This disease was previously known as the '2019 novel coronavirus,' or '2019-nCoV.' It is a new virus that belongs to the same virus family as a severe acute respiratory syndrome (SARS) and certain types of the common cold (Organization et al., 2020). This disease has conquered the world since December 2019. The first outbreak was in Wuhan, China, and the first case of COVID-19 was detected in Malaysia on 25 January 2020. The case involved three Chinese nationals who had previous close contact with an infected person in Singapore (Elengoe, 2020). There are some things societies can do to help slow the spread of this virus, such as covering the mouth and nose while sneezing, washing hands frequently and using hand sanitiser, and, most importantly, staying at home if sick.

Numerous things have changed all around the world since the virus attack, and the pandemic has influenced Malaysia in a variety of fields, including education. Most university students just started their new semester in March 2020 since the government decided to implement the Movement Control Order, starting March 18, 2020, until March 31, 2020, nationwide. This control order is issued under the Prevention and Control of Infectious Diseases Act of 1988 and the Police Act of 1967, and one of the MCO orders is to immediately close all public and private higher education institutions (HEIs) and skills training institutes across the country (Perutusan Khas YAB Perdana Menteri Mengenai COVID-19 - 16 Mac 2020, 2020).

Since the order was imposed, most university students have open and distance learning but not everyone has been able to adapt to this new normal including the students themselves, teachers, lecturers, and parents. Technology is unpredictable, and virtual learning can stimulate anxiety for students, especially when they have an assignment due or a virtual meeting to attend, and when they are unable to communicate or connect with one another, this is more than just irritation or annoyance.

The psychological illness term also refers to mental illnesses or psychiatric disorders, which are more commonly recognized. Mental illnesses are characterized by a pattern of behavioural or psychological symptoms that affect various aspects of one's life. The person who is experiencing these symptoms is distressed by these disorders (Explore a List of Psychological Disorders From the DSM-5, 2020). Anxiety is one of the disorders that can be identified in the list of psychological effects. Some of the symptoms of people with anxiety are excessive and recurrent fear, concern, anxiety, and associated behavioural problems.

Furthermore, prior research by Naser et al (2020), found that anxiety was most common among university students at 21.5%, followed by health workers 11.3%, and the general population 8.8%. This is due to the fact that the majority of students were living on campus or in off-campus rental accommodation during the pandemic. Apart from being unable to attend physical classes or participate in field studies, students at these institutions of higher learning are also unable to participate in daily activities such as jogging, walking, exercising, or playing physical games on the field to relieve the stress they are experiencing during this pandemic (Zainal, 2020).

Apart from having Internet and communication problems, the students also face extreme stress which is supported by other studies that say it has something to do with 'screen exposure' which when the students are exposed to the screen for four or five hours, will indirectly cause students to have difficulty sleeping and then experience emotional disturbances (AIDA, 2020). According to a June study, 75% of college students reported feeling

more anxious or stressed which leads to anxiety as a result of online learning (Fuentes et al., 2020).

Literature Review
Several studies have discovered factors that impact the anxiety index between open and distant learning and physical classes.

Open and Distance Learning
Open and distance learning (ODL) is the first indicator of student anxiety. By the second week of ODL, students began to update the status with a range of assertions, ranging from numerous chores, running out of quota, and the Internet network's condition. In the absence of interpersonal contact, anxiety arises (Galea et al., 2020). However, Irawan et al. (2020) claim that online learning removes the sense of nonverbal communication from interpersonal encounters. Lack of relationships and constraints on actual meetings cause students to dislike online learning. Boredom is positively correlated with the state anxiety scale and trait anxiety scale (Klncel et al., 2021).

Physical Class
According to Adnan and Anwar (2020), 78.6% of respondents believe physical contact with an instructor is productive for learning. Physical learning was also identified as more beneficial by respondents in the survey than ODL. Student motivation and achievement are issues connected to the lack of physical classrooms. In prior research, Driscoll et al. (2012) reported that the most significant group differences were observed in teacher-related factors such as instructor motivation in student learning. Unlike online professors, real class instructors frequently show their interest through classroom and office interactions. As a result, online students had no access to instructor engagement.

Gender
There are differences between gender in handling their anxiety and emotions. Men had more extreme emotional experiences, while women had more expressive emotional states. Gender differences in emotional experience and expression were dependent on the form of emotion, not just the valence (Deng et al., 2016). Girls were more anxious than boys since almost 58% of girls love to share their emotions with their parents compared to boys (Khesht-Masjedi et al., 2019). The study also found that exam anxiety contributed significantly to the results of female pupils. Female students with higher levels of exam anxiety had worse grades in online programming (Chapell et al., 2005). Preliminary data shows that most pupils study at home. 510 students said they were nervous about attending online classes, with females being more concerned than males (Saade et al., 2017).

Age
A study by Islam et al (2021) found that roughly 26.5% of respondents aged 17 to 18 suffered from mild to severe depression. There is a study conducted by Son et al (2020) with mean age mean by 20.7 years old, 71% indicated their stress and anxiety had increased due to the pandemic. Thus, teenagers and adults between the ages of 18 and 25 are more likely to experience anxiety in carrying out daily activities, particularly when taking online classes.

Level of Study and GPA

According to Wang et al (2021), those with a bachelor's degree have 0.39 times lower chance of experiencing anxiety than those with a master's degree or higher. Research by Yusoff et al. (2013) found out students with a grade point average (GPA) less than or equal to 3.80 had fewer symptoms of anxiety than students with a GPA between 3.81 and 4.00. Hence the current descriptive study looks at how academic stress affects student performance, mental health, and well-being. A meta-analysis of 13 research indicated that higher education is related to worse quality of life and happiness (Ribeiro et al., 2018).

Technical Difficulties

Technical troubles are interruptions caused by technical problems such as defective browser or computer settings. The shift to technology-based training has had a big influence on today's workplace (Sitzmann et al., 2010). Adnan and Anwar, 2020 found that 51.6% of respondents agree that weak signal strength is the main cause of poor Internet connectivity. 11.1% of respondents consider Internet services too pricey for frequent connectivity. To learn online, students must be able to cope with the fast-paced online courses and have appropriate computer and technology abilities. According to prior research (Bahasoan et al., 2020), 15% of respondents reported network and quota restrictions, 37% said they were just networks, 18% said they were simply quotas, and 1% stated they had none.

Financial Issues

During the online classes, there are some students who are struggling to survive because of the financial crisis that they must deal with. Most of the students claimed that the pandemic had affected their household income. The students stated fears about their financial situation in general. For instance, financial difficulties are one of the main reasons why some students are forced to work part-time. In Indonesia, the average annual cost of education and living keeps rising (Elling & Elling, 2000). This indicates that the pandemic of increased spending had to be borne by students and families, the impact on learning at home and there were some students who had to work while studying to help their families.

Environment Issues

A study by Arslan and Allen (2021), the researcher defines stress as "a special relationship between a person and the environment, who claims to be taxed or exceed their resources and endanger their well-being". Anxiety factors also include lack of social support, especially from family and friends. Compared with students who lived with family and friends, students who are alone have higher anxiety (Bostan et al., 2020). Moreover, research done by Tull et al (2020) showed that during the pandemic season, the number of individuals residing in a house has substantially grown. Therefore, more individuals are anxious, particularly those who come from broken families.

Methodology

The survey research design was employed in this study. Descriptive research details populations or an actual phenomenon's characteristics (Sekaran & Bougie, 2016). The research is about the students' psychological impact due to COVID-19, and the necessary information for the students has been acquired. The population profile detail was gained by utilizing the descriptive research design. In addition, the cross-sectional design was employed in the data gathering method for the research project. The term" cross-sectional design"

refers to research in which data was collected from the sample just once (Sekaran & Bougie, 2016). Azlan et al (2020) believe that the cross-sectional design only allows researchers to collect data once, the single-cross sectional design is the best research design to apply.

In this study, the researcher targets full-time students or undergraduate students as representatives of Malaysia's public universities. At this level, the undergraduate students concentrated entirely on their studies and are totally attached to their learning, including time to submit university-based assignments and class schedules. This must be considered when measuring their index of anxiety that only depends on their education and not on other commitments. In addition, all public university students in Malaysia have experience studying in physical classes as well as open and distance learning during the Covid-19 pandemic, especially undergraduate students. Therefore, the research focused on all local students at public universities who were full-time undergraduate students and had attended physical classes before COVID-19 emerged and are currently taking classes online for this semester. Non-random sampling was used to get respondents and the online questionnaire was used as a data collection method.

Questionnaire
The research tools used in this study consist of four main parts: Part A is the demographic data, which covers basic demographic data. Part B is Zung's questionnaire during physical education class, while Part C is Zung's test during online learning and the last part is factors that lead to increased anxiety during an online class. Anxiety indexes were examined in sections B and C using Zung's self-rating anxiety scale (SAS) self-rating anxiety questionnaire. This instrument was created using emotional symptoms based on diagnostic criteria rather than factor analytic research. It has now been translated and utilized in numerous nations. This instrument contains 20 items and employs a Likert-type scale. The Likert-type scale of 1 to 4; "1 = None or a little of the time", "2 = Some of the time", "3 = Good part of the time", and "4 = Most or all of the time." Moreover, in this survey there are also some questions that can be linked to the factor of increasing the index of anxiety towards open and distance learning during pandemic Covid-19 among Malaysia's public universities students in section D. In the first part, technical difficulties became one of the causes of increased anxiety among students during online classes. Research by Adnan and Anwar (2020) found that 51.6% of respondents believe that signal strength or availability is the main reason for insufficient Internet access. Furthermore, environmental issues may affect anxiety indexes, especially during the lockdown. This involves isolation from friends and family, lack of social support, and stigma. Compared with students who live with family and friends, students who are alone feel more anxious. Lastly, financial issues can be the main cause of anxiety indexes. A student with a scholarship has less anxiety than a student with no scholarship. Students without scholarships need to make a financial plan and follow it strictly. Some of them do part-time jobs to overcome money shortages. This will increase their anxiety levels higher to manage their finances.

The theoretical framework shown in Fig.1 states that the research consists of two components which are independent and dependent variables. Four independent variables were identified based on the previous study such as age, gender, level of study and GPA. In addition, the researcher added three more independent variables that the researchers believe influence mental and psychological health which were environmental issues, financial issues, and

technical difficulties. It shows the link between the index of anxiety among Malaysia's public university students as dependent variables and demographic factors, financial issues, environmental and technical difficulties as the independent variables to examine the Covid-19's pandemic psychological impact on open and distance learning and physical class among Malaysia's public university students.
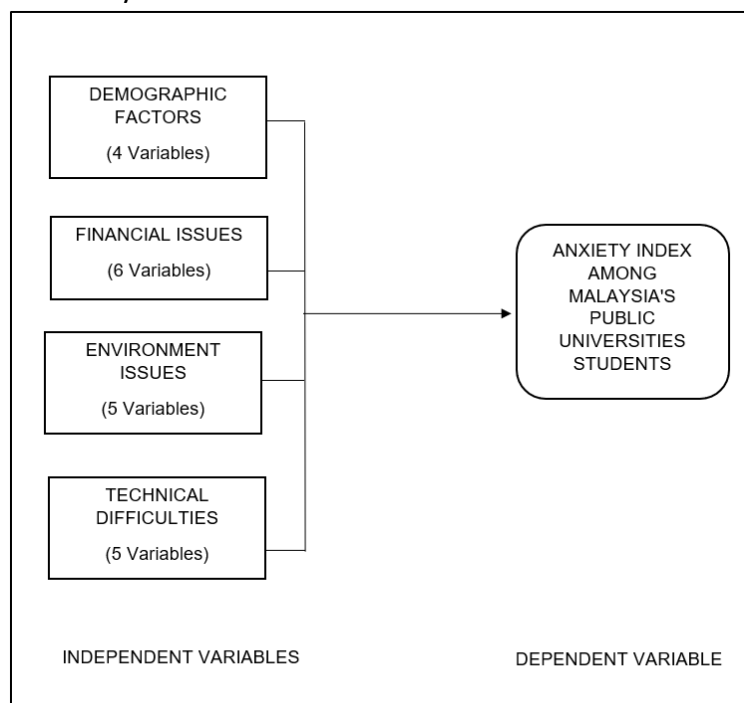

Fig. 1 The relationship between independent and dependent variables.

Statistical Analysis

The questionnaire prepared for this study was distributed to students after getting permission from Ethics Approval of the UiTM Research Ethics Committee. Before the actual study, a pilot study was done to gather background information and assess the questionnaire's suitability.

Table 1
Reliability Test

Study	Variables	Number of items	Cronbach's Alpha
Pilot Study	Zung Self Rating Anxiety Scale (Physical)	20	0.903
	Zung Self Rating Anxiety Scale (ODL)	20	0.889
	Overall of variables	40	0.938
Actual study	Zung Self Rating Anxiety Scale (Physical)	20	0.891
	Zung Self Rating Anxiety Scale (ODL)	20	0.881
	Overall of variables	40	0.920

The test was conducted twice in the pilot study and actual study. The pilot study had 40 respondents while the actual study was 386 in total. Table 1 shows the highest reliability in Cronbach's alpha for both studies shown by the Zung Self-Rating Anxiety Scale for Physical Class and Zung Self-Rating for Open and Distance Learning (ODL), which are 0.903 and 0.889

for the pilot study and for the actual study was 0.891 and 0.881 respectively. Thus, the questionnaire was reliable for both the pilot study and the actual study since it was higher than 0.7.

Descriptive statistics are employed to determine the frequency and percentage of responses based on gender. The researchers considered two methods to analyze results in this study which are Paired Sample t-Test and Multiple Linear Regression for the study result, researchers used SPSS programs and Microsoft Excel and defined α = 0.05 in any test used. The Paired Sample t-Test evaluates the means of two related groups to see whether there are differences in anxiety index between open and distance learning (ODL) and physical class among Malaysia's public university students. The assumptions that need to be met are the dependent variables must be continuous, should not contain any outliers and should be approximately normally distributed.

Multiple Linear Regression (MLR) is a statistical methodology that predicts the result of a response variable by combining numerous explanatory variables. To determine whether demographic factor(s), technical difficulties, financial issues and environmental issues are significant factors that affect the anxiety index during open and distance learning. To measure the strength of the linear relationship between dependent and independent variables, this research used Pearson's Correlation. Checking on model adequacy is important to make sure all the important model assumptions are valid before performing the inferences and the assumptions in adequacy checking are the error terms are normally distributed, have constant variance and must be independent.

Finding and Data Analysis
Finding Demographic Characteristics of Malaysia's Public Universities Students
The demographics section has 4 questions. From 386 respondents, 68.9% of Malaysian public university students who responded to the survey were female. However, only 31.1% of males responded. 66.8% of respondents are aged 21 to 22 years old while only 2.3 % are aged 25 to 26. Among the undergraduate students, 13.7% were diploma students, while the rest were degree students. The GPA is divided into 2 parts: the current GPA in a physical class and the current GPA in online classes. Physical learning received the highest scores of 3.40 to 4.00 from 187 respondents but one record has a GPA below 2.2. The researcher noticed a 10.9% rise in the GPA 3.50 and above group from 48.4% to 59.3%. Since the students need to state the highest GPA during physical class and ODL class, this variable is considered a quantitative continuous. Table 2 shows a maximum GPA of 4.00 for both sessions. Online classes have a lower GPA than physical classes, at 1.98. The average GPA in physical classes is 3.43, with a standard deviation of 0.33. Online classes have an average GPA of 3.48, with a standard division of 0.32. The average online class GPA is higher than the average physical class GPA.

Table 1
Demographic factors of students

Demographic	Number of students	Per cent
Gender		
Male	120	31.1
Female	266	68.9
Age		
19 – 20	73	18.9
21 – 22	258	66.8
23 – 24	46	12.0
25 – 26	9	2.3
Level of study		
Diploma	53	13.7
Degree	333	86.3
GPA (physical class)		
1.60 – 2.19	1	0.3
2.20 – 2.99	32	8.3
3.00 – 3.49	166	43.0
3.50 – 4.00	187	48.4
GPA (ODL)		
1.60 – 2.19	1	0.3
2.20 – 2.99	24	6.2
3.00 – 3.49	132	34.2
3.50 – 4.00	229	59.3

Paired Sample t-Test
Testing The Difference in Anxiety Index Between Open and Distance Learning (ODL) And Physical Class
Three assumptions must be met prior to conducting the test. Firstly, the dependent variable should be measured on a continuous scale, there should be no significant outliers in the differences between the two related groups and the distribution of the differences should be approximately normally distributed. Since all the assumptions were met, this testing can be conducted.

Based on Table 2, the anxiety index of 35% of students during physical class is normal and decreases to 20.7% during the ODL class. Similarly, students with minimal to moderate anxiety have increased from 35.5% to 38.3%.

Table 2
Anxiety index of students

Anxiety Index	Clinical Interpretation	Physical Class	ODL Class
Below 45	Within normal range anxiety	135 (35.0)	80 (20.7)
45 – 59	Minimal to moderate anxiety	137 (35.5)	148 (38.3)
60 – 74	Marked to severe anxiety	87 (22.5)	123 (31.9)
75 and above	Most extreme anxiety	27 (7.0)	35 (9.1)

This research reported the mean anxiety index during physical class is 52.575 while the anxiety index during open and distance learning is 56.738. It clearly shows that the anxiety index during open and distance learning is higher compared to a physical class. Based on the Zung questionnaires, the result of four clinical interpretations for the anxiety index shows that public university students in Malaysia have a low to moderate index of anxiety. The p-value results for the paired sample test between anxiety index during physical and ODL class are shown in Table 3. Since the p-value = 0.000, there is a significant difference in anxiety index between online distance learning and physical classes. Hence, it can be concluded that the anxiety index for ODL class is higher than the physical class.

Table 3
Paired Sample t-Test

Anxiety Index	Mean	Standard deviation	t	p-value
Physical Class	52.575	13.7443	-9.388	0.000
ODL Class	56.738	13.1632		

Multiple Linear Regression
Determining Significant Factors That Affect the Anxiety Index During Open and Distance Learning (ODL)
There are 20 independent variables that were used to predict the mean score of the anxiety index of students during open and distance learning. Hence, the independent variables were gender, age (in a month), level of study, GPA Open and Distance Learning, internet resources, Internet problem, Internet speed, sharing device, technology skill problem, internet expenses, family income disrupted, scholarship intake, part-time job, seek government help, government advantage, staying arrangement, personal space, specific study time, lecturer awareness and family awareness. Data were analyzed and assumptions were checked.

Sixteen independent variables were categorical variables Hardy (1993), dummy variables are used when the variable is a dichotomous variable that was created from a qualitative variable. The formula of (G-1) is the number of dichotomies required, where G is the number of original data.

Model Adequacy Checking
The regression model for the data must meet certain assumptions. As a result, the model can be applied if all the assumptions are met. Each predictor must have a linear relationship with the independent variables, the error terms must be normally distributed, the error variance must be constant or homoscedasticity, and there must be no multicollinearity and outlier

detection. Since all the assumptions were met accordingly, the model can be applied in this study.

Model Validity Checking
The F test was performed to determine whether there was a relationship between anxiety index during ODL class and the list of variables used to predict the outcomes. The test hypothesis would be to verify that the model is significant. Showing the result of the ANOVA table, the model is significant since the p-value is less than $\alpha = 0.05$. The rejection of the null hypothesis reveals that at least one independent variable contributes significantly to the model.

Table 4
ANOVA Table

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	p-value
Regression	7402.506	21	352.500	2.164	0.002
Residual	59306.067	364	162.929		
Total	66708.573	385			

Following the validity of the model, the significance of each parameter was tested. This step is crucial since it determines whether the independent variables are significant when estimating the dependent variable. Out of 21 independent variables, there are three independent variables that significantly estimate anxiety index during open and distance learning. It shows gender (p-value = 0.005), age in a month (p-value = 0.030), and technology skill problems (p-value = 0.035) significantly affect the anxiety index ODL as their p-value is less than $\alpha = 0.05$. Equation (1) is the estimated regression equation for the anxiety index during ODL class.

Based on the regression equation, this indicates that the anxiety index during ODL class for male students is 4.361 less than for female students while other variables are held constant. For the second variable, it shows that for every 1-month increase in age (in a month), the anxiety index during ODL will also increase by 0.111 while the other variables are held constant. However, if the students have a problem with technology skills, the anxiety index will increase by 3.099 compared to students who have no problem with technology skills. So overall, the anxiety index for a female would be higher than male students during ODL class and the anxiety index increases as age increases, and anxiety index can be reduced if students have no problems with technology skills.

$$Y = 42.288 - 4.361X_1 + 0.111X_2 + 3.099X_3 \qquad (1)$$

where;

Y = anxiety index during ODL

X_1 = Gender $\begin{cases} 1 & \text{Male} \\ 0 & \text{Female} \end{cases}$

X_2 = Age (in a month)

X_3 = Technology skill problem $\begin{cases} 1 & \text{Yes} \\ 0 & \text{No} \end{cases}$

Conclusion

In comparing the anxiety index between ODL and physical class among Malaysian public university students, the researchers used a Paired Sample t-Test in the first objective. There was enough evidence to prove that there is a significant difference in anxiety index between two different situations. This matches other college student findings. Following COVID-19, Biber et al (2020) found an inverse relationship between student anxiety, optimism, gratitude, and perceived instructional effectiveness. The findings of this study show that the average anxiety index during ODL was higher than in physical class and most of them have low to moderate levels of anxiety. This result tallied with the researchers' study that most of the students have a moderate level of anxiety during the Covid-19 outbreak.

To determine the most significant factors that affect the anxiety index during ODL the researcher used Multiple Linear Regression (MLR). According to the analysis, the factors that significantly affect the anxiety index were gender, age (in a month) and technology skill problems. The findings reveal that male students had a 4.361 lower anxiety index during ODL than female students. However, this study is similar to a study by Khesht-Masjedi et al (2019) that claims girls are more worried than boys. Moreover, this study reported that for every 1-month increase in age, the anxiety index during ODL will also increase by 0.111. In line with the study mentioned above that as they grow older, many youths experience a variety of anxiety symptoms. Finally, the study found that students who struggle with technology skills increased 3.099 anxiety index compared to students who do not struggle with technology.

Recommendations

According to the study's findings, students who struggle with technology skills have a higher anxiety index. Thus, it is advised that students should learn more about technology since it is important in today's world, especially among the systems that are frequently used. These activities can help students improve their technical skills while reducing their anxiety. Moreover, senior students were found to have a higher anxiety index than juniors where the anxiety index will increase as age increases since senior students are involved with various projects that require report writing. It is recommended that students should create their own study plan to complete all assignments on time. Students can become more disciplined and less anxious if they are not overburdened with work at the last minute. Meanwhile, students should also share their problems to reduce their anxiety index. Thus, developing digital psychological interventions is highly recommended. Institutions must also provide psychiatric support to students, either in person or remotely. As a result, colleges and families should work together to help students overcome their fears.

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