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Assessing the Impact of Motivation, Self-Efficacy, and Anxiety on University Students' Online Learning Performance

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Abstract

This study investigates the effects of the abrupt shift from face-to-face (F2F) to online distance learning (ODL) due to the COVID-19 pandemic on students at UiTM Pasir Gudang, Johor, and UNITAR International University. A quantitative approach, employing online surveys with adapted questionnaires, was used to assess students' motivation, self-efficacy, and anxiety. A comprehensive survey was conducted among students from UiTM Johor Campus Pasir Gudang and UNITAR International University to gather insights into their experiences. This study uses a quantitative method to analyze data collected using an online structured questionnaire. Two adapted research questionnaires on students 'motivation, self-efficacy, anxiety and online learning performance with 5-likert scales will be utilized. The findings indicate positive influences of online learning on motivation, highlighting flexibility and convenience. Self-efficacy emerged as a crucial factor, contributing to higher motivation and adaptability. Students demonstrated proactive strategies to minimize anxiety, and online learning enhanced self-study abilities and academic performance. Future research should include a comparative analysis with traditional classroom learning and explore the impact across diverse demographic and cultural backgrounds. Insights gained can inform the development of effective online education programs.

Keywords: Impact of Motivation, Self-Efficacy, Anxiety, University Students, Learning Performance

Introduction

COVID-19, a disease caused by the novel coronavirus, typically results in mild to moderate respiratory symptoms for most infected individuals, though recovery usually does not require special treatment. However, it poses a more significant risk for the elderly and those with pre-existing health conditions like diabetes, cardiovascular diseases, respiratory illnesses, and cancer, who are more susceptible to severe complications and mortality (Aboagye et al., 2020). The virus's identification and characterization were achieved through methods such as

whole-genome sequencing, polymerase chain reaction (PCR), and analysis of bronchoalveolar fluid from affected individuals (Zhou et al., 2020; Zhu et al., 2020). The human-to-human transmission of the virus has necessitated measures like social distancing and avoiding crowded areas, leading governments worldwide to temporarily close educational institutions. In response to these closures, emergency remote teaching has been adopted as an interim solution to prevent disruption in education during the pandemic. This shift has seen the traditional face-to-face teaching model largely replaced by e-learning. However, the transition to online learning presents unique challenges, especially in developing countries. These challenges include issues like poor internet connectivity, limited ICT skills among educators, and a gap in the development of online content compared to more developed regions (Aboagye et al., 2020). For many educators, particularly at the tertiary level in developing countries, adapting to technologies such as video-based content delivery is a novel experience. This situation demands improved technological infrastructure and a significant cultural shift in the workplace for educators. A crucial consideration in implementing e-learning is assessing the readiness of learners for the online environment, as success in traditional classroom settings does not necessarily equate to success in an online learning context (Aboagye et al., 2020).

Problem Statement

On the 25th of January 2020, the first case of COVID-19 was detected in Malaysia and traced back to 3 imported cases from Chinese nationality who previously had close contact with an infected person in Singapore (First coronavirus cases in Malaysia: 3 Chinese nationals confirmed infected, quarantined in Sungai Buloh Hospital (2020). The imported case is defined as infection of a virus that happens outside of Malaysia.

Few months later, Malaysia reported its first sporadic case of COVID-19 where the infected person neither travelled to an affected area nor had contact with an infected person (Hashim, Adman et al. (2021). The number of positive cases increased beyond 553 cases on the 16th of March 2020, and the Prime Minister of Malaysia announced a Movement Control Order (MCO). Social distancing was to be in place for 14 days starting from 18th March to 31st March 2020 as a control mechanism to reduce the rapid spread of COVID-19.

Since the 18th of March 2020, the government restricted people from travelling to other states or COVID-19 affected areas. Only 1 person from 1 family could leave the home and go out to buy essential goods. The whole world has been affected since by this pandemic including our education system. For the first time, the Ministry of Education and Ministry of Higher Education must consider conducting online teaching and learning sessions for the whole system.

The extensive research conducted on the transition to online learning during the COVID-19 pandemic has predominantly focused on the experiences and reactions of students, parents, and educators, as well as on the preparedness and academic performance impacts associated with this shift (Anand Shankar Raja and Kallarakal 2021; Basuony, Alawamleh, Al-Twait et al. 2022; Baxter and Hainey 2022). While these studies provide valuable insights into the functional aspects of this transition, there remains a notable gap in understanding the deeper psychological and emotional effects on students who were abruptly thrust into online learning environments with minimal preparation.

This gap in the literature is significant for comprehensively understanding the impacts of the pandemic on educational experiences. The lack of focus on how students' self-efficacy and mental health were affected by the sudden switch to online learning is a key area that requires

further exploration. Investigating these aspects is crucial for gaining a fuller picture of the challenges students faced and for guiding future educational policies and support mechanisms in times of crisis. This research would not only contribute to the academic discourse on pandemic-related educational changes but also offer practical insights for enhancing student support systems in similar future scenarios. The current study aims:

1. To investigate the impact of students' motivation on online learning due to covid-19.
2. To identify the impact of self-efficacy on online learning due to covid-19.
3. To examine the impact of anxiety on online learning due to covid-19.
4. To assess the impact of online learning performance on learning experience due to covid-19

Literature Review

Online Learning

Teaching online is different from teaching in a classroom. Educators need different skills and knowledge to teach online. They also said that teaching online and in a classroom at the same time is a new and good way to teach in higher education. They called this blended learning, which makes teaching and learning better and more flexible. Other researchers said that online learning helps teachers to use methods that are not possible with books. It also helps teachers to reach more students, without worrying about space and time. They said that teachers should focus on what they teach, not how they use technology, to make teaching and learning strong. According to Archana et al., (2020) said that university leaders should use their resources well, to give better education and help to students. They also said that using technology in teaching can help students and teachers to learn in their own way, and to talk and work together online.

Online education means that students are far away from their teachers and need technology to learn (Wilde and Hsu, 2019). The design of the learning environment can affect how well students learn. Online education has been studied for a long time and is effective when it is planned carefully. However, due to the COVID-19 pandemic, many students had to switch from face-to-face instruction to online learning in the middle of the semester. People can only process a limited amount of information, and using different ways of learning can make it hard to learn new things. If students don't feel confident using the technology or don't feel like they are part of the class, they may not learn as well (Bower,2019).

Students Motivation

Motivation refers to the learner's desire to learn. It includes the satisfaction that comes from learning and the intention to achieve a goal. Motivation is important because it affects how much effort a student puts into learning. Students who are motivated will engage in activities that help them achieve their goals. Similarly, Albelbisi and Yasop (2019) explain that learners who are highly self-regulated exhibit effective positive motivation and self-efficacy concerning their learning processes through selecting learning content, identifying learning goals, and organizing and controlling their learning. Research has shown that lack of motivation and self-regulation skills in online learning may result in individuals spending extra time completing assignments, turning in late assignments, or overall poor-quality work (Albelbisi & Yasop, 2019).

Basuony et al., (2021) stated that students are responsible for motivating themselves and that self-motivation is an important part of learning. Beishuizen et al. (1994) defined self-motivation as the energy that people generate themselves to achieve a goal. Law et al. (2019)

explained that self-motivation is a behavior that helps students engage in their learning and motivates them to complete every task given by their instructors to pursue their goals. Baxter and Hainey (2022) found that online synchronous learning can cause a lack of student motivation to engage with this style of educational delivery. However, most respondents indicated that synchronous online learning does in fact facilitate students' motivation. This is consistent with the work of Basuony et al., (2021), as they found that recording videos, instructor teaching, and feedback had a positive impact on student motivation.

Self-efficacy

Self-efficacy is the belief that people have in their ability to accomplish a task. In online learning, some scholars (e.g., Aguilera-Hermida, 2020: Chu & Tsai, 2009) have highlighted the importance of self-efficacy because of the absence of interactions and the existence of further distractors in comparison with face-to-face learning. Learners with a higher sense of efficacy are good at managing their competencies and do not hold unfavorable perceptions, whereas learners with a lower degree of self-efficacy, who are not very competent in dealing with difficult situations, might be more anxious while accomplishing goals (Aguilera-Hermida, 2020). Aguilera-Hermida, 2020 proposed three general perspectives concerning self-efficacy in online learning: (1) self-efficacy with technology (e.g., students' perceptions of their ability to use the applications effectively for online learning), (2) self-efficacy in learning (e.g., students' belief in their ability to learn more effectively in online courses), and (3) self-efficacy to interaction (e.g., students' eagerness to interact with their instructors as well as their peers socially and academically).

Anxiety

The sudden shift from face-to-face to e-learning instruction has been a significant source of stress for students, leading to a rise in anxiety and depression. Anxiety is a complex emotion characterized by fear and uncertainty, often triggered by an event that threatens one's self-esteem (Mamolo,2022). It is a subjective feeling of apprehension, tension, nervousness, and worry associated with the nervous system's arousal. Anxiety can have a profound impact on students' behavior, cognition, and physiology, which in turn can affect their academic performance. Anxiety is also a common problem during student examinations.

Therefore, the shift to online instruction has been a significant source of stress for students, leading to a rise in anxiety and depression (Mamolo,2022). Students with high levels of anxiety may experience reduced memory span, loss of concentration, lack of confidence, and insufficient reasoning power. To ease this transition from face-to-face instruction to online learning, course expectations and requirements should be clarified (Abdous, (2019). Boosting the self-confidence and preparedness of online students to an unfamiliar learning environment is also important. According to Mamolo (2022) stated that online instructors should consider integrating learner-centered approaches and planned interventions to lessen student anxiety, resulting in higher student satisfaction. Although there are several studies on technologies and internet-related anxieties, they are relatively scarce.

Methodology

This section outlines the research methodology employed in this study to address the following questions.

1. What is the impact of online learning on student motivation due to COVID-19, as measured through descriptive analysis?
2. What is the impact of online learning on students' self-efficacy due to COVID-19, as measured through descriptive analysis?
3. What is the impact of online learning on anxiety due to COVID-19, as measured through descriptive analysis?
4. What is the impact of online learning performance on learning experience due to Covid-19, as measured through descriptive analysis?

Instrument and Research

The study focuses on university students, specifically from UiTM Johor Campus Pasir Gudang and UNITAR International University. The survey instrument for this study was developed by investigating various literature on students' motivation, self-efficacy, anxiety, and online learning (Mahande et al., 2022, Pelucio et al., 2022 Singh et al., 2020, Huang et al., 2020). The validity and reliability of the survey items were tested in the developed questionnaire. The research instrument consisted of two parts. The first part is students' demographics, such as gender, department. The second part consisted of questions about students' motivation, self-efficacy, anxiety, and online learning performance factors. All survey questions were designed on a five-point likert scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree and 1 = strongly disagree).

On top of that, the pilot test was carried out to check the clarity and validity of this questionnaire and was initially tested on 10 students. The pilot test showed that the question items did not contain difficult words or understanding. Therefore, the questionnaire did not need any changes. Furthermore, the questionnaire was submitted to three experts, including researchers and academicians, to gain feedback. No anomalies were found, and a full-scale survey was carried out. The data were collected during the learning-from-home process and physical distancing conditions from November 2022 to January 2023. Data collection for this study was carried out using an online platform via Google Forms and all questions were compulsorily answered. Hence, there was no data lost as tabulated in Table 1.

Finally, 133 participants responded to the understanding of online learning. The data were analyzed descriptively, including statistical methods, to interpret the survey data. The aim is to provide insight and explanation for the collected data, describing the characteristics of the sample. The gathered data underwent descriptive analysis using the Statistical Package for the Social Sciences (SPSS) software version 28. This analysis includes measurements of frequency, mean, percentage, and standard deviation to describe students' level of motivation, self-efficacy, and anxiety before and after they were exposed to the online learning mode.

A pilot test is a small-scale trial or research undertaken before the appropriate data is utilised for the main test. The pilot study is valuable for collecting data transparency from a small sample of individuals' trials. Data transparency derives from a reliability test that evaluates the consistency of a statistic. A pilot test needed 10% to 20% of the sample size recommended in the study. Therefore, the questionnaire was given to 30 respondents to conduct a pilot test. There are 30 questions in the questionnaire that were included for the pilot test.

Table 1
Pilot Test

Variables	Cronbach's Alpha (α)	No of Item
Online Learning	0.924	5
Students' Motivation	0.902	5
Self-Efficacy	0.903	5
Anxiety	0.649	5

Table 1 presents the reliability coefficients (Cronbach's Alpha, α) for the study variables and the result indicates that coefficients of this study are between 0.852 and 0.924. The variable for online learning performance showed the coefficient (α) was 0.902, which is considered excellent reliability. On the other hand, the coefficient (α) for the independent variables of students' motivation is 0.902, which is excellent reliability. While the coefficient (α) for the other two independent variables of self-efficacy is 0.903 and anxiety is 0.649, which are both considered very good reliability (Zikmund et al., 2013).

Data Analysis

Characteristics of the Respondents

A total of 133 questionnaires were distributed to respondents UiTM Pasir Gudang, Johor and UNITAR International University. The questionnaire was used on the online platform, Google Forms to collect this data. All questionnaires received were checked to confirm that all questions had been addressed. Only 133 data were analyzed for findings in the end. According to Table 1, a total of 133 students actively participated in this study, consisting of 88 respondents from UiTM Johor Campus Pasir Gudang and 45 respondents from UNITAR International University. Then, the data was analyzed using IBM Statistical Package for the Social Sciences (SPSS) software version 28.0.

Demographic Analysis

The study results indicated that there were 98 female respondents (73.3%), while male respondents numbered 35 (26.3%). In terms of age, it was found that the highest number of respondent online learning were those aged between 18-22, totaling 59 individuals (44.4%). This was followed by respondents aged 21-23, accounting for 49 individuals (36.8%), and those aged 24-26, comprising 15 individuals (11.3%). Regarding ethnicity, the respondents were comprised of Malays (71.4%), Indians (20.3%), Chinese (6%), and other indigenous groups (2.3%). Therefore, the field of this study mostly from science social with 72 individual (54.1%) and followed by science and technology 61 individuals (45.9%). During COVID-19, the student needs to use online learning. The living arrangement of the student is mostly with family, with 84 (63.2%), followed by hostels with 29 individuals (21.8%), residential houses with 15 individuals (11.3%), and lastly, students living their arrangements without family with 5 individuals (3.8%). The study focused on students registered as Diploma and bachelor's students, this is indicated for students that using online learning during the Covid-19.

Findings

The mean scores and standard deviations were used to answer the research questions presented in this paper. The first research question students expected to rate based on their own self-motivation. It is defined as the self-generated energy that gives behavior direction toward a particular goal. To answer this question, five (5) items in the questionnaire were set. Every item is 5-likert scale. Table 2 shows that there was a positive impact. Table 3 shows that there was a positive impact on the student's motivation for online learning due to COVID-19, with an overall mean score of 3.103 and 0.767 as a standard deviation.

Table 2
Student Motivation

	Mean	**Standard Deviation**
I am motivated when doing assignments during online learning	3.59	.947
I am interested in course content and the way lecturers deliver the materials during online learning	3.7519	.91623
I am motivated to learn because I have a good relationship with my lecturers during online learning	3.6617	.90359
I am motivated to learn because I have a good relationship with my classmates during online learning	3.7594	.92237
I am happy because I am connected to various material sources during online learning	3.8571	.91406
Total	3.10335	.767208333

The second research question student expected to rate about Self-efficacy. Self-efficacy is based on an individual's judgment of his/her capability to organize and execute the courses of action required to attain designated types of performances. Table 3 shows that there was self-efficacy during online learning. Table 4 shows that there was a positive impact on the student's self-efficacy for online learning due to COVID-19, with an overall mean score of 3.298 and 0.798 as a standard deviation.

Table 4
Anxiety

	Mean	**Standard Deviation**
I am very confident when studying online	3.6241	1.11872
I feel anxious about my internet network during online learning	3.6466	1.20098
I feel anxious about my immune systems if I spend a long time in front of the computer during online learning	3.3609	1.20188
I feel confident when communicating with my lecturers during online learning.	3.602	1.1344
I am not nervous during the online learning process.	3.5338	1.17775
Total	2.961233333	.972288333

The fourth research question is about to rate online learning performance due to Covid-19. Table 5 discusses Interaction and learning experiences between instructors and students by using certain technologies and through the internet. Table 6 shows that there was a positive impact on online learning performance due to COVID-19, with an overall mean score of 3.223 and 0.734 as a standard deviation.

Table 5
Online Learning Performance

	Mean	**Standard Deviation**
My knowledge has increased during online learning	3.8571	.89733
My self-study ability has improved during online learning	3.8120	.93055
My critical thinking skills have improved during online learning	3.7970	.89408
My collaborative learning skills have improved during online learning	3.7895	.88807
I could learn more flexibly and affordably during online learning	4.0827	.79815
Total	3.22305	.734696667

Discussion & Recommendation

The burgeoning interest in online learning has broadened the scope of academic research, as highlighted in this study on students' preferences at two universities. This study reveals that students are highly motivated to engage in online learning, primarily due to its flexibility and convenience. The ability to access materials and participate in discussions at their own pace and location is highly valued. Furthermore, students emphasize the importance of interactive content and effective communication channels with instructors and peers, enhancing their online learning experience. The use of technology in education, a relatively novel approach, also contributes significantly to their motivation (Mamolo, 2022)

However, the study also indicates that self-efficacy plays a crucial role in students' motivation for online learning. Students who believe in their abilities to succeed in this environment are more likely to be motivated and engaged. This is supported by Yokohama's (2019) theoretical perspective, which suggests that self-efficacy is bolstered through mastery experiences, observing successes, and social persuasion. The study finds that students, particularly those from Generation X, are adept at handling technical issues and actively seek assistance through various communication channels. Their adaptability and resourcefulness in using online platforms and tools, along with a strong sense of collaboration, further boost their confidence and motivation in online learning.

On top of that, students' proactive approach and adaptability are crucial in minimizing anxiety and fear, allowing them to fully embrace the online learning environment. The study highlights how students prioritize their physical well-being, incorporating regular breaks and exercises into their routine to balance screen time and physical activity. This awareness contributes to a positive mindset, enhancing their understanding and communication with lecturers, which in turn improves their grasp of the subject matter.

The study also explores the impact of online learning on students' self-study abilities and overall academic performance. The flexibility of online learning enables students to tailor

their study schedule, fostering independence, responsibility, and self-discipline. These skills, along with enhanced technological literacy due to the use of various digital tools, prepare students for the digital age. The findings suggest that online learning not only facilitates academic success but also encourages a productive and focused approach to learning.

In conclusion, the study demonstrates that online learning significantly boosts student motivation and academic performance, due to its flexibility, technological integration, and the ability to tailor learning experiences. Students' positive mindset, enhanced self-study abilities, and improved adaptability are key outcomes of this mode of learning. For future research, a comparative analysis between online and traditional classroom learning is recommended, along with an exploration of the impact of online learning across different age groups and cultural backgrounds. Such studies could provide deeper insights for the development of effective online education programs.

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