Predictors of Student Satisfaction and Perceived Learning in Online Distance Learning: The Effects of Self-efficacy and Interaction

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Abstract
The increasing number of COVID-19 cases in Malaysia forced the Ministry of Higher Education to postpone reopening the university in October 2020. To ensure continuity of learning, universities had no choice but to continue with online distance learning (ODL). Though ODL is not a new experience, the absence of first-time face-to-face meetings is challenging. Due to the importance of student satisfaction and perceived learning as outcomes of online learning, the factors affecting these variables should be considered extensively. The purpose of this study is to examine the influence of online learning self-efficacy, learner-content interaction, learner-instructor interaction, and learner-learner interaction on student satisfaction and perceived learning. An online questionnaire survey method was used to collect data among diploma accounting students of University Teknologi Mara, Tapah. By deploying SPSS, 321 surveys were analyzed. The multiple regression results revealed that only self-efficacy, learner-content interaction, and learner-learner interaction were significantly predictive of student satisfaction and perceived learning. The results also found that learner-content interaction was the most contributed predictor of student satisfaction and perceived learning. However, learner-instructor interaction was not a significant predictor of both dependent variables. The findings of the study could be beneficial for educators in designing lesson content and planning for teaching methods and styles to improve the interaction with the students. This study also addressed how educators may practically prepare students for asynchronous online courses by teaching them to learn with a high level of self-efficacy and by encouraging student interaction.
Keywords: Online Learning, Student Satisfaction, Perceived Learning, Self-Efficacy, Interaction

Introduction

The year 2020 has witnessed the world facing unprecedented global health that forced the government to implement the Movement Control Order (MCO) to contain the spread of the Covid-19 virus. The COVID-19 pandemic has profoundly affected all parts of society, causing extraordinary disruptions in the healthcare system, economic activity, work life, social life, and academic life, and no exception to the tertiary levels of education (Aristovnik et al., 2020). To ensure the continuity of the teaching and learning process, universities and students have no choice but to use online and distance learning (ODL) to replace traditional face-to-face classes (Mathew & Chung, 2020). All the physical lectures, seminars, practical demonstrations, laboratory exercises, written examinations, and oral exams had to be conducted virtually (Svatos et al., 2022). Even though ODL implementation is not a new practice since they have experienced blended learning previously, the sudden change contributes to the difficulty in adjusting to the new norm of teaching and learning. This transformation was challenging due to the short transition period, the necessary resources needed to accomplish the task, the need to react quickly, and the panic brought on by the pandemic (Sharaievska et al., 2022). It has been acknowledged that ODL brings several benefits in terms of flexibility, accessibility, affordability, and life-based education opportunities (Segbenya et al., 2022). However, ODL still imposes challenges on both educators and students. To prevent students from feeling alone and isolated throughout the learning process, educators must organize the content and teaching strategies following the new mode of delivery while incorporating the latest technology (Aristovnik et al., 2020). During online classes, the educator also might experience technical issues, unsuitable infrastructure, and the absence of technical support that hamper the quality of delivering knowledge.

In the student context, they faced problems in terms of the availability of devices for the online class, poor internet connection, unreliable power electricity, and lack of experience in using ICT equipment (Segbenya et al., 2022; Aristovnik et al., 2020). Since every student comes from different background, it is proven problematic for some students from rural areas since they face ODL-related issues in terms of financial and budget constraints in having such devices and data for online classes (Kamil et al., 2022; Mathew & Chung, 2020). Being isolated at home also puts students in a situation where they have no privacy and cannot give concentration and participate actively in online classes resulting from house chores or caregiver responsibilities (Sharaievska et al., 2022). As a result, students may struggle to understand the subject matter leading to increased procrastination in completing assignments and a sense of work overload. Excessive screen time on gadgets also contributes to eyestrain, headaches, stress, and other serious health problems (Abou Hashish., 2022; Sundarasen et al., 2020). The MCO forbids individuals from interacting with others physically and socially. The students might feel a loss of their usual semester routine like field trips, study groups, access to the library, and other valuable educational experiences not readily available online. Thus, it might bring a variety of unpleasant feelings, including reduced motivation for ODL tasks and feelings of frustration, boredom, worry, and bewilderment (Sharaievska et al., 2022; Aristovnik et al., 2020). Similarly, Allam et al (2020) further reported that less interaction with lecturers and peers leads to poor self-confidence, increases procrastination, and triggers anxiety and fear to achieve good performance for the course enrolled.

Despite the fact that the ODL is the only solution during the COVID-19 outbreak, the challenges faced by the student could lessen their academic satisfaction. In the ambit of online learning, Alenezi (2022) reported that there are three factors affecting student satisfaction, which are instructor, interactivity, and technology. The same author also reported that students perceived satisfaction when their educator exhibited the necessary techno-pedagogical skills and made extra efforts to engage students online. Another study by Iqbal et al (2022) stated that educators' accessibility, prompt responses, and constructive feedback are considered helpful in increasing their satisfaction, especially during the difficult time adapting to distance learning. In terms of interaction, Elshami et al (2021) stated that satisfaction with the learning experience increases when interactions with other students, instructors, and content exist synchronously and asynchronously. According to Callo and Yazon (2020), factors influencing students' satisfaction with technology during online distance learning are learner familiarity, capability, preparedness, device and access connectivity, self-efficacy, and experience with technology. By looking at the sources of satisfaction mentioned above, it is undeniable that student satisfaction is crucial in determining the success of ODL. The student with a high level of satisfaction fosters self-esteem, which in turn aids in building confidence, new abilities, and knowledge in a positive feedback loop (Karim et al., 2021). While, dissatisfaction will affect students' academic performance, health, and attitudes and consequently increase dropout cases.

Distance learning is a way of learning in which the educator and the students are geographically apart. The process of knowledge transfer is challenging, and student perception of learning is a crucial indicator that the learning has taken place. Prabhu et al. (2022) refer to student-perceived learning as students' perception of the knowledge they have acquired through online learning. Baber (2020) stated that elements including educator facilitation and understanding, course structure, interaction in the online class, and student enthusiasm to participate are crucial predictors of perceived student learning. Since there is less opportunity for physical interaction in online classes, online student engagement represents a key indicator of the perceived student-learning outcome. Previous research has shown a correlation between the factors that influence student satisfaction and perceived learning (Baber, 2020; Bray et al., 2008). The greater the perceived learning outcome in online learning, the more satisfied students are amid the pandemic. In addition, the two variables are important determinants of how successful and effective the learning process is. The university needs to emphasize how students reflect on their online learning experiences and regularly assess the degree of students' perceived learning and satisfaction. It is vital to enhance the teaching and learning process and provide students with a supportive learning environment.

Prior studies have documented that self-efficacy, learner-content interaction, learner-instructor interaction, and learner-learner interaction can predict student satisfaction and perceived learning (Prabhu et al., 2022; Alqurashi, 2017). Baber (2020) discovered that in South Korea and India, the factors such as classroom interaction, student engagement, course structure, educator expertise, and facilitation positively influence students' perceived learning and satisfaction. Another study by Becirovic et al (2022) investigated online students' satisfaction, interactions, internet self-efficacy, and self-regulated learning among 210 high school students in Bosnia and Herzegovina. In Malaysia, Karim et al (2021) explore the factor that determines students' satisfaction with distance learning apps but is limited to three

variables: technology self-efficacy, perceived usefulness, and perceived ease of use. To the best of our knowledge, there is no current study investigating the effect of self-efficacy and interaction on student satisfaction and perceived learning in ODL, particularly for diploma accounting students during the COVID-19 pandemic. This study is timely and important for the management of universities to ensure that the current teaching and learning processes can accommodate students' needs and satisfaction. Thus, the objectives of this study are:

1. To determine to what extent the predictor variable of online learning self-efficacy, learner-content interaction, learner-instructor interaction, and learner-learner interaction can predict diploma accounting student satisfaction; and among these predictors, which one is the strongest and most significant predictor?
2. To determine to what extent the predictor variables of online learning self-efficacy, learner-content interaction, learner-instructor interaction, and learner-learner interaction can predict diploma accounting student perceived learning; and among these predictors, which one is the strongest and most significant predictor?

The remainder of the paper is organized as follows. The second section reviews the prior literature on the research variables. The third section describes the research methodology of the paper. In section four, this paper presents the results and discussion of the findings. Lastly, the final section concludes with the limitations of the study and recommendations for future research.

Literature Review
An overview of Online Distance Learning

Distance learning was first introduced in the late 1800s and gained popularity in the late 1990s as technology advanced. It started with the parcel posts and then moved on to radio, television, and finally online learning (Kentnor, 2015). Now, online learning has become commonplace rather than just a fad. With the fundamental idea being that learning activities in an informal setting employ any Internet tools with little to no physical and social connection with the educator, the term online distance learning, e-learning, blended learning, online learning, and virtual learning are also used interchangeably (Allam et al., 2020). There are many different instructional settings and methods available for online learning. The synchronous approach enables educators to deliver knowledge virtually to students through Google Meet, Zoom, Jitsi, Microsoft Team, Cisco Webex, and other video conferencing methods (Saidi et al., 2021). While, the Learning Management System (LMS) is used in asynchronous contexts to permit students to download the learning material such as lecture videos, PowerPoint slides, notes, or ebooks at their own time and pace (Abou Hashish et al., 2022; Rindaningsih et al., 2021).

Online learning is possible on many platforms, including Edmodo, Litmos, Canvas, Moodle, Google Classroom, Schoology, Docebo, and certain institutions build their own LMS systems such as uFuture, Blackboard, and Spectrum (Karim et al., 2021; Saidi et al., 2021). The LMS also enables evaluation for the semester possible in terms of disseminating instructions and receiving submissions of ongoing assessments and final examinations. The educators can then use online marking via PDF, Doc Hub, Microsoft Edge, Kami, Xodo, or Inkodo to assess student performance. Online formative evaluation technologies like Kahoot!, Quizizz, Quizlet Live, Gimkit, and Google Forms can be used by educators to examine student understanding

and boost their participation in online classes (Kadar et al., 2020). Chat apps like WhatsApp, Telegram, Email, Facebook, Instagram, and Twitter also provide a platform for students to engage with peers and educators when face-to-face interaction is not possible during the pandemic. A perfect learning environment that works for both educators and students is essential. To enhance student motivation, motivate learning, and foster engagement during the learning process, it is suggested that educators should combine synchronous and asynchronous approaches (Zeng & Wang, 2021). Most students prefer asynchronous over synchronous approaches due to issues with their internet connectivity, lack of online gadgets, and improper learning conditions for virtual classrooms (Wei et al., 2021). Therefore, it is imperative to focus on student satisfaction and perceived learning in the context of ODL.

Student Satisfaction

An individual's opinion of the educational experience, services, and facilities offered would influence their attitude toward education is known as student satisfaction (Elshami et al., 2021). Student satisfaction is a crucial indicator of the quality of the course taken and the effectiveness of the learning process since satisfied students will perceive the university and the program as having a positive reputation thus will increase in students' loyalty (Abdul Latip et al., 2020). When students are satisfied, they are motivated to engage, respond actively and be conducive to a productive learning environment (Becirovic et al., 2022). In the context of online learning, various factors can influence student satisfaction, including self-regulated learning, self-motivation, self-efficacy, student learning style, educator knowledge, and facilitation, course structure, interaction, perceived ease of use, perceived usefulness, and role of the university (Alenezi, 2022; Yan-Li et al., 2022; Dinh et al., 2022; Becirovic et al., 2022; Baherimoghadam et al., 2021; She et al., 2021; Karim et al., 2021; Baber, 2020; Aristovnik et al., 2020; Alqurashi, 2017; Kuo et al., 2014; Eom et al., 2006). Additionally, the benefits of online learning such as convenience, flexibility, and cost-saving also enhance student satisfaction (Dinh et al., 2022; Elshami et al., 2021). However, issues such as the quality of online instruction, problems with connectivity, unsuitable study surroundings, and unavailability of electricity could lessen student satisfaction with online learning (Iqbal et al., 2022).

Previous literature documented mixed results on the relationship between the abovementioned factors with student satisfaction. A study on undergraduate and graduate students taking online classes offered by the College of Education of a medium university in the Intermountain West by Kuo et al (2014) revealed that learner–content interaction and learner–instructor interaction have the strongest and weakest relation with student satisfaction. While learner-learner interaction, internet self-efficacy, and self-regulated learning was not a significant predictor of student satisfaction. Another study conducted by Eom et al (2006) identified that course structure, self-motivation, learning styles, instructor knowledge and facilitation, interaction, and instructor feedback significantly influenced Midwestern university students' satisfaction. Moving towards the pandemic setting, Aristovnik et al (2020) revealed that most of the students from 62 countries were satisfied with the role played by their teaching staff and universities' public relations in ensuring that online learning continued to be available throughout the pandemic. By utilizing SPSS and AMOS version 24.0, Karim et al (2021) discovered that there is a strong correlation between self-efficacy and perceived ease of use with student satisfaction. This implies that students will be satisfied with ODL when they have a high sense of technology self-efficacy and

consequently feel easy to use distance learning. However, perceived usefulness has no impact on student satisfaction. Consistent with the previous finding, Dinh et al (2022) found that self-efficacy and self-regulated learning predict student satisfaction, thus leading to favorable academic outcomes and achievements. Based on the survey conducted on 1,195 university students from Thailand, Malaysia, Indonesia, and China, Yan-Li et al (2022) documented a surprising result where more than 60% of the students were not satisfied with their online learning courses due to low online learning readiness in terms of online learning preference, direction, self-efficacy, and hardware-soft skill supports. It could be due to suddenness shift from conventional physical learning to online learning during this pandemic that posed several challenges in terms of preparedness in mechanisms and infrastructure. Thus, the educator and university play a crucial role to improve student satisfaction and the service provided to ensure the success of online education.

Perceived Learning
Besides student satisfaction, perceived learning is widely considered an indicator of how well the ODL has been adopted (Bray et al., 2018). It is also accepted as one of the core elements of course evaluation (Prabhu et al., 2022; Alqurashi, 2017). According to Lin (2016), perceived learning is a retrospective self-assessment of how much students believe they have gained from an educational experience. Students' judgments of whether learning is occurring or not have changed as a result of the abrupt transition from an offline to an online learning environment during the pandemic. In virtual learning settings, student perception of learning is aided by the educator's humor, facial expressions, gestures, verbal tone and pace, salutations, group references, acceptance, and direction (Alenezi, 2022). Zhang et al (2022) reported that teaching presence significantly and positively influenced student's perceived learning in video-centric asynchronous online courses. The authors stated that the positive correlation between teaching presence and perceived learning can be significantly increased by individual variables like self-efficacy to complete an online course, and the moderating impact can be enhanced by inhibitory control. However, when inhibitory control is extremely high, online vigilance has the possibility of significantly positively influencing the relationship between educator presence and perceived learning.

According to Gray and DiLoreto (2016), the design of the course, student engagement, and educator presence all have a statistically significant effect on how well students think they are learning. Baber (2020) consistently produced the same results with the inclusion of contributing variables such as student motivation, educator expertise, and facilitation. Because the preceding course structure is utilized for the offline mode of learning, this illustrates the need to design a proper course structure to meet the method of learning performed during the pandemic. Previous studies have shown that self-efficacy is the strongest predictor that significantly contributed to perceived learning in online contexts (Prabhu et al., 2022; Alqurashi, 2017). This signifies that students with high self-efficacy will be confident and capable of completing an online course with good grades. The same authors also researched the association between interaction and perceived learning and found a significant positive relationship between three predictor variables of interaction (content, instructors, and peers) and student-perceived learning. During ODL, students spend a lot of time understanding the subject matter and absorbing knowledge to study independently without being lectured because there is no face-to-face connection or interaction. Their involvement with the content might be crucial to their learning as they engage in self-thinking

and acquire knowledge from it. Students are also under pressure academically because of the pandemic and lack of social interactions due to increased online exposure. Surprisingly, Basri et al. (2022) found a non-significant negative total effect of stress on perceived learning. This suggests that effective learning requires a certain level of stress.

Self-Efficacy

Classic definition by Bandura (1986, p. 391) defined self-efficacy as "people's judgments of their capabilities to organize and execute a course of action required to attain designated types of performances". The student is less likely to put out the effort and, as a result, is less likely to succeed if they have poor self-efficacy in learning. According to Alqurashi (2016), individuals with greater levels of self-efficacy regard difficult tasks as challenges to be defeated rather than threats to be avoided, which improves their general well-being and feeling of self-accomplishment. In the ambit of online learning, Shen et al (2013) suggest that to have high self-efficacy, students need to master at least three areas, which are technology, learning, and social interaction. Additionally, they identified that demographic variables including gender, academic status, and the number of online courses taken were shown to influence online learning self-efficacy.

Tang and Tseng (2013) stated online distance students who had a high level of self-efficacy displayed superior information searching and information manipulation skills. Whereas, Ulfatun et al. (2021) revealed a strong positive correlation between students' online self-efficacy and online self-regulated learning. The two studies mentioned above further supported Kurbanoglu's (2003) conclusion that students are more inclined to engage in information problem-solving activities and are more likely to become self-regulated students when they feel competent and confident about their information literacy skills. A recent study by Karim et al (2021) documented that self-efficacy influences perceived usefulness and perceived ease of use, suggesting that students are willing to adopt technology when they feel it to be practical, simple, and uncomplicated. The same researcher also discovered that student satisfaction is predicted by self-efficacy. Dinh et al (2022); Aldhahi et al (2022) consistently came to the same conclusion and claim that students are more likely to be satisfied and improve their academic performance when they feel confident in their ability to study online.

She et al (2021) revealed that academic self-efficacy and student engagement partially mediated the relationship between interaction and online learning satisfaction. This demonstrates that more-interactive students are more likely to develop their self-efficacy and engage actively in online learning, both of which increase satisfaction. Self-efficacy also plays a moderating role in the relationship between learner-content interactions and perceived learning thus recommend that universities should design course content and assessment that is suitable to be implemented during online learning (Prabhu et al., 2022). By using Structural Equation Modelling (SEM), Abdul Latip et al (2022) discovered that performance expectancy and social influence are moderated by self-efficacy toward acceptance of e-learning among undergraduate and postgraduate levels in Malaysian higher education institutions during the COVID-19 pandemic. Thus, it is essential to establish a supportive virtual learning environment to increase students' self-efficacy since doing so can help them accept ODL.

Interaction

The overnight shift from face-to-face classes to online learning due to the COVID-19 pandemic has resulted in a transactional distance between the instructor and learner. Moore (1993, p. 1) introduced the theory of transactional distance and defines transactional distance as "the psychological or communicative space that separates the instructor from the learner in the transaction between them, occurring in the structured or planned learning situation". Based on this theory, the pedagogical elements of education are defined by three sets of variables, which are structure, learner autonomy, and dialogue, subsequently known as interaction. According to Moore and Kearsley (1996), structure describes the elements of a course design and its adaptability. While learner autonomy refers to a student's ability to make decisions regarding their learning and dialogue is the interaction and communication between an instructor and student. This present study adopts Moore's most prominent framework of interaction in distance learning namely learner-content, learner-instructor, and learner-learner interactions.

Learner-content interaction is the interaction between the learner and the material to be learned normally in the form of text, audio, video, graphs, and graphics (Arbaugh & Benbunan-Fich, 2007). Interaction of students with the content requires them to discuss or think about the ideas, knowledge, skills, and concepts that they learned throughout the course independently. Prior studies have documented that students' interaction with the content is the strongest and most significant determinant of student satisfaction (Kuo et al., 2014; Alqurashi, 2017). In another study, Kim et al (2021) found that low transactional distance between learners and content has positive effects on self-directed learning. To put it another way, students are more likely to use self-directed learning techniques if they are interested in or related to the content. Prabhu et al (2022) discovered that learner-content interaction is the most significant predictor of perceived learning for hospitality students. In the absence of face-to-face communication, the authors further suggest lecturers facilitate learning by adding simulations, case studies, and web searches as a way to enhance learners' engagement with the content.

Learner-instructor interaction, on the other hand, may be simply defined as the synchronous or asynchronous online conversation between the instructor and the student throughout a course (Alqurashi, 2017). Instructors must provide direction to students on whether they have learned the topic correctly, how it should be studied, and how it should be discussed. Whether they are physically present or not, the instructor plays a basic component and critical role in fostering learning (Prabhu et al., 2022). The feedback and responses of the instructor are crucial in ODL because they help to foster the belief that learning is taking place. The prior study's findings show that learner-instructor interaction was highly associated with increased perceived learning serves as a support for this (Arbaugh & Benbunan-Fich, 2007; Prabhu et al., 2022). Interestingly, O'Leary and Quinlan (2007) conducted a study to investigate learner-instructor telephone calls and their impact on the satisfaction and achievement of online students. However, no significant effect was found on the level of satisfaction reported and the grades of the students. In contrast to earlier findings, Kuo et al (2014); Alqurashi (2017) revealed that student satisfaction was significantly but not strongly impacted by learner-instructor interactions. This could be due to an unpleasant experience gained from criticism, evaluation of student assessment, grades discussion, and other learning activities.

Learner-learner interaction describes the sharing of knowledge, ideas, and views between course participants. According to Arbaugh and Benbunan-Fich (2007), student perception of learning was not significantly impacted by learner-learner interaction. While research by Alqurashi (2017) revealed that learner-learner interaction had the least influence on predicting both online student satisfaction and perceived learning. Similarly, Prabhu et al (2022) reported that learner-learner interaction is the least contributing factor to perceived learning among hospitality students. This shows that the more the emphasis on learner-content and learner-instructor interaction, the higher the likelihood of having satisfied students and higher perceived learning.

Methodology
Sample Selection
This study employed descriptive analysis, a questionnaire-based research design to investigate the effects of self-efficacy and interaction on student satisfaction and perceived learning in ODL. The population of this study consists of accounting students at UiTM Tapah, who, in comparison to other Private Finance Initiative (PFI) campuses, comprise a large group of students pursuing accountancy diplomas. The online questionnaires using Google Forms were distributed to students from two programs: A Diploma in Accountancy and a Diploma in Accounting Information Systems from March 8 until March 26, 2021. The sample selection is from a group of 1,893 students who were enrolled in university from October 2020 to February 2021. This semester was chosen because this is the first semester with the absence of a first-time physical class as the Ministry of Higher Learning canceled to reopen the university due to increased cases of COVID-19. Thus, the students experienced 100% ODL throughout the semester. The students were selected based on a simple random sampling technique where all students from the sampling frame have an equal opportunity to be involved in this study. In total, 321 valid responses were obtained, exceeding the 320-response minimum sample size requirement for the 1900 population. In establishing the right sample size, this figure also complies with several rules of thumb. Based on Sekaran and Bougie (2013), the sample size in a study should fall within the range of 30 to 500. Consequently, the 321-person sample size is deemed adequate for this study.

Measurement
Survey questions were used in this study as the research instrument. They were adopted from the earlier study, which was then appropriately revised for the context of accounting students at UiTM Tapah. Altogether, there are five sections included in the questionnaire. The first section of the survey asked about the participant's demographics, including the courses they had undertaken, their current semester, the devices they utilized, and their preferred e-learning tools. Section 2 consists of eight self-efficacy questions that gauge respondents' level of confidence in their ability to complete particular tasks in the online course. A total of 18 interaction-related questions were included in Section 3, including four, six, and eight questions each on learner-content, learner-instructor, and learner-learner relationships. Two questions about student satisfaction are listed in Section 4 of the questionnaire. The final question in Section 5 concerned how students perceived learning. Alqurashi's (2017) prior work served as the basis for the self-efficacy, interaction, student satisfaction, and perceived learning scales for online learning. The response of the self-efficacy items was taken on 5-point Likert-scaled items starting from cannot do at all to highly confidence can do. For interaction and student satisfaction, students are asked to tick the box

next to each item that best represents their opinion on a 5-point Likert scale, with 1 denoting a strongly disagree and 5 denoting a strongly agree. While students need to measure their perceived learning from not well at all (1) to extremely well (5).

Data Analysis

The current study uses SPSS (Statistical Package for Social Science) software to analyze the data. The mean and standard deviation for each scale were then examined in the students' descriptive data. A Cronbach's alpha reliability test was performed to assess the internal consistency of the items on each scale. The multiple regression analysis was performed to examine the effects of two independent variables (self-efficacy and interaction) on student satisfaction and perceived learning in ODL during the COVID-19 pandemic was investigated in this study using multiple regression analysis.

Demographic Information

Table 1 below displays the demographics distributions for program, semester, and choice of gadget. The respondents are represented almost by the students from Diploma in Accountancy (81.3%). Majority of these students are from Semester 3 (44.1%) followed by Semester 5 (29.1%), Semester 1 (17.5%), Semester 2 (7.8%) and Semester 4 (1.6%). The students have also been asked about the choice of gadgets they used during the ODL session. The result shows that 68.1 % of the students had chosen Laptop. The others are likely to use mobile phones (26.5), computers (4.7%), and tablets (0.6%).

Table 1
Demographic Profile of the Respondent

Variable	Level	Frequency	Percentage (%)
Accounting Program	Diploma in Accounting (AC 110)	260	81.3
	Diploma in Information System (AC120)	60	18.8
Semester	Semester 1	56	17.5
	Semester 2	25	7.8
	Semester 3	141	44.1
	Semester 4	5	1.6
	Semester 5	93	29.1
Choice of Gadget	Computer	15	4.7
	Laptop	218	68.1
	Mobile Phone	85	26.6
	Tablet	2	0.6

In addition, the student's response to the question on their preference for e-learning tools. Based on Figure 1 below, shows that the majority of the students are likely to prefer to use Google Classroom, Google Meet, YouTube, WhatsApp, and Telegram (7.8%) as their tools to learn.
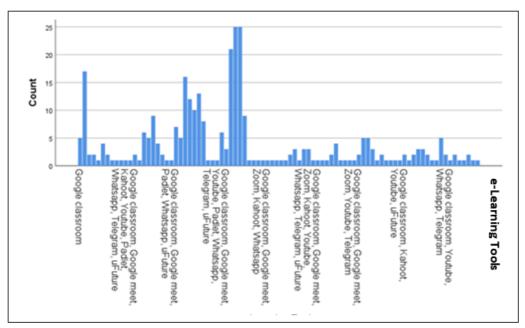
Figure 1 *Student Preference for e-Learning Tools*

Descriptive Analysis and Reliability

Table 2

Data Measurements

Subscales	Items	Mean	Standard Deviation	Cronbach's Alpha
Self-efficacy	8	3.79	.732	.868
Learner-content	4	3.70	.835	.804
Learner-instructor	6	3.90	.783	.803
Learner-learner	8	3.90	.851	.890
Student Satisfaction	2	3.67	.871	.858
Perceived learning	1	3.71	.713	-

The descriptive statistics and reliability details for the variables instruments used in this study are presented in Table 2. All variables' minimum and maximum values fall between 1 and 5. The average score on each subscale was greater than the midpoint (3) of the relevant scale. This demonstrates that accounting students do, to some extent, encounter all these elements, which affect how they perceive their learning and satisfaction.

Meanwhile, the reliability test was conducted to check the internal consistency of the scales. It is shows that self-efficacy (Cronbach Alpha = 0.868), leaner-content (Cronbach Alpha=0.804), learner-instructor (Cronbach Alpha=0.803), learner-learner (Cronbach Alpha = 0.890), and student satisfaction (Cronbach Alpha=0.858). Cronbach's coefficient alpha for perceived learning could not be computed since it contains only one item. The reliability coefficients of the five dimensions exhibit consistency since all subscales were larger than 0.7. Consistent with Sekaran and Bougie (2013), the elements included in the survey were reliable and valid, thus leading to reliable results and findings.

Results and Discussion

Table 3

Multiple Regression Analysis between Four Predictors and Student Satisfaction as Dependent Variable

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.501	.277		-1.808	.072
	Self-efficacy	.424	.085	.278	4.977	.000
	Learner-content interaction	.359	.061	.299	5.867	.000
	Learner-instructor interaction	-.068	.076	-.049	-.896	.371
	Learner-learner interaction	.387	.068	.301	5.645	.000
a. Dependent Variable: Student Satisfaction						

Multiple linear regression was performed to predict student satisfaction within an online learning environment based on four predictor variables (self-efficacy, learner-content interaction, learner-instructor interaction, and learner-learner interaction). A significant regression equation was found ($F_{4, 307}$) = 66.724, p<0.000), with an overall adjusted R^2 of 0.458. This value indicates that only 45.8% of the total variation in student satisfaction within an online learning environment can be explained by these four predictor variables. Table 3 above shows the result for each predictor's coefficient that use to predict student satisfaction within the online environment. The predictors were examined individually and indicated that self-efficacy (t=4.997, p<0.05), learner-content interaction (t=5.867, p<0.05), and learner-learner interaction (t=5.645, p<0.05) were significant predictors. Meanwhile, learner-instructor interaction was not a significant predictor (t=-0.869, p>0.05). This finding suggests that when there is an increase in self-efficacy, learner-content interaction, and learner-learner interaction, the level of student satisfaction in the online environment will be expected to increase. In terms of self-efficacy, the finding of the current study is in line with a study conducted by (Karim et al., 2021; Dinh et al., 2022; Aldhahi et al., 2022). Strong self-efficacy gives students the confidence to believe they can complete any task, no matter how challenging. Though movement control orders refrain from interacting physically with educators and peers or going to the library to find learning materials, the students can independently learn on their own with limited tools and materials.

Turning to interaction, this study found that only learner-content and learner-learner interaction did influence student satisfaction. While this result contradicts previous findings which found that learner-content and learner-instructor interaction has a significant positive relationship with student satisfaction (Kuo et al., 2014; Alqurashi, 2017), the findings of this research is consistent with the previous study done by O'Leary and Quinlan (2007) who identified that learner-instructor interaction has no impact to student satisfaction. The surprising finding signifies that students becoming more independent as they can learn by referring to the materials (notes, slides, lecture videos) uploaded through Google Classroom or YouTube. Interaction with peers also helps them to solve issues like misunderstanding, misinterpretation, or miscalculating the figures in any accounting subject taken. Consistently,

this study yield the same results as Kuo et al (2014); Alqurashi (2017) that learner-content interaction (Beta=0.299) was found to be the most contributed predictor to predict student satisfaction. This finding is a valuable insight into what should be considered in increasing student satisfaction where educators play a critical role in preparing high-quality learning content as well-designed and organized course content that helps students keep on track, even with minimal guidance from the educator (Kim et al., 2021).

Table 4
Multiple regression analysis between four predictors and perceived learning as dependent variable

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.583	.267		2.183	.030
	Self-efficacy	.270	.082	.205	3.290	.001
	Learner-content interaction	.277	.059	.267	4.705	.000
	Learner-instructor interaction	.095	.073	.080	1.300	.195
	Learner-learner interaction	.187	.066	.168	2.827	.005
a. Dependent Variable: Perceived Learning						

The second aim of this paper is to investigate whether online learning self-efficacy, learner-content interaction, learner-instructor interaction, and learner-learner interaction predict diploma accounting students perceived learning. A significant regression equation was found (F4, 307) = 38.371, p<0.000), with an adjusted R2 of 0.333. This value indicates that only 33.3% of the total variation in the level of perceived learning within an online learning environment can be explained by these four predictor variables. Based on Table 4 above shows the result for each predictor's coefficient that use to predict perceived learning within the online environment. The predictors were examined individually and indicated that self-efficacy (t=3.290, p<0.05), learner-content interaction (t=4.705, p<0.05), and learner-learner interaction (t=2.827, p<0.05) were significant predictors. Meanwhile, learner-instructor interaction still was not a significant predictor (t=1.300, p>0.05). This can be deduced from these results that when there is an increment in the level of self-efficacy, learner-content interaction, and learner-learner interaction, the level of perceived learning within the online environment will be expected to be increased. These findings are inconsistent with the prior study conducted by Alqurashi et al (2017) who identified that learner-content interaction, learner-instructor interaction, and self-efficacy contribute significantly to student-perceived learning. Interestingly, Prabhu et al (2022) reported that all four variables positively and significantly influence perceived learning.

The inconclusive finding reveals that during the pandemic students depend heavily on the course content while requiring moderate and less interaction with peers and instructors respectively. This could be due to unpreparedness for the online class as they might have a problem in terms of limited access to the internet, quiet and peaceful conditions for class, and unsuitable gadgets and tools. This is also evident by the result of the study that learner-

content interaction (Beta=0.267) was found to be the most contributed predictor to predict perceived learning, then followed by self-efficacy (Beta=0.205) and learner-learner interaction (Beta=0.168). In contrast with the findings of Alqurashi (2017) who found that self-efficacy was the strongest determinant of perceived learning, this result lent support to studies by (Prabhu et al., 2022). This provides important evidence that good learning content is essential in an online learning environment thus educator needs to provide students with more comprehensive, interactive, and attractive content for students to embrace learning (Prabhu et al., 2022). In short, students perceived learning by referring more to course content, developing self-efficacy through the ability to complete all the tasks assigned, and requiring moderate interaction with peers throughout the ODL.

Conclusion

This study aims to determine the influence of online learning self-efficacy, learner-content interaction, learner-instructor interaction, and learner-learner interaction in predicting student satisfaction and student-perceived learning in ODL during the COVID-19 pandemic. The findings reveal that learner-content interaction, self-efficacy, and learner-learner interaction are significant predictors of both dependent variables. While, learner-instructor interaction was not a significant predictor. On the other hand, the results found that learner-content interaction was the strongest determinant of student satisfaction and perceived learning. Our results show inconsistencies with what has been found by Alqurashi (2017), particularly on the role played by educators and peers in the online learning environment. As we acknowledged that the overnight shift from physical to online classes contributes to the hectic educator's life, the educator should make the student aware of their presence by providing prompt feedback and immediacy (Prabhu et al., 2022). Besides, educators should always encourage students to stay strong and healthy during this challenging time and shows a sense of empathy to those who are in need and affected by COVID-19.

The findings of the present study also serve as a practical implication for educators and academic institutions to concentrate on creating effective online learning environments by emphasizing the factors that contribute to student satisfaction and perceived learning. Sufficient training and pedagogy course should be provided to educators for them to design comprehensive course content and create lively, exciting, and interactive online classes. In order to establish a feeling of community in the online environment that emphasizes the student's contribution to the learning process, educators should concentrate on learning interactions as a core to plan, develop, and deliver online learning. It is crucial to understand that educators work as facilitators in the learning process and that interactions not only influence student satisfaction but help students to learn and gain confidence in their abilities to succeed in online academic settings (She et al., 2021). It is undeniable that online learning sharpens student self-efficacy as they tend to spend most of their time reading learning materials or completing assignments, and digesting the content, they need to learn through thinking, elaboration, or reflections that occur during learning processes (Kuo et al., 2014). It is recommended that educators and academic institutions take the initiative to increase students' self-efficacy in all aspects, including computer, internet, information seeking, and Learning Management System (LMS) self-efficacy, so they may adopt a distant learning-based strategy (Aldhahi et al., 2021)There are certain limitations of this study. This study's sample did not accurately reflect the whole population of accounting students because it consisted

of university students from a single campus of one public university. This sample's selection could not be an accurate reflection of all diploma accounting students, and utilizing just one locality might have added unintended bias. Future research should broaden the sample size to include students from different campuses or universities including those who experienced ODL in Sabah and Sarawak, and a sample from private universities to improve the representativeness of the findings. The current study uses simple random sampling thus research in the future should employ other types of sampling for instance stratified sampling techniques. Future studies also should explore other variables such as age, gender, family involvement, student learning style, perceived usefulness, and any other variable that potentially predicts student satisfaction and perceived learning in the online learning setting. Additionally, the researcher could explore any other outcome variables such as academic performance. As the present study is quantitative in nature, the future researcher should perform other analytical methods such as longitudinal, qualitative, or mixed-method approaches to investigate the influence of four predictor variables. It is also suggested for future studies to include any mediating or moderating variable in the relationship between antecedents and outcomes in the online learning context.

Finally, this study portrays the result of emergency distance learning due to COVID-19, the results of this study may not generalize to other learning environments, such as hybrid or blended courses. Future studies should compare synchronous and asynchronous learning formats, as well as conventional and hybrid learning, to better understand the differences across learning environments. Online learning is seen as the learning method of the future, one that both educators and students should embrace with open arms. The pandemic of COVID-19 has opened an opportunity for everyone from kindergarten to tertiary level of education to experience ODL, although nobody was ready for this transition. Future studies will thus be necessary to assist academic institutions, educators, and decision-makers in improving the e-learning environment, which is anticipated to be used more often in the future. With proper planning, it is envisaged that ODL's strengths may be strengthened and its shortcomings can be improved, allowing universities to better prepare for the demands of future online learners.

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