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The Importance of Interactions During Open and Distance Learning (ODL) in Accounting Education

Humairaa Hasan, Suliza Suhaimin, Nurul Hassanah Hamzah, Nur Syazwani Mohammad Fadzillah, Mohamad Azmi Nias Ahmad

Faculty of Accountancy, Universiti Teknologi MARA Pahang, Campus Jengka, Pahang, Malaysia

Corresponding Author Email: mohdazminias@uitm.edu.my

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Abstract

The accounting education community has been struggling to adapt to the COVID-19 Open and Distance Learning (ODL) due to the sudden shift to an online environment. The community, especially the students, faces a variety of challenges. Focusing on academic performance is crucial as it reflects the result of the students' hard work. Interaction was one of the many factors that impacted students' performance, given that the COVID-19 learning environment has limited interaction and past literature supports this claim. However, few have studied it with the focus on accounting education during the COVID-19 ODL. With the aim of providing insight to the accounting education community in offering unhindered quality learning, the researchers are focusing on Learner-Learner Interaction (LLI), Learner-Educator Interaction (LEI), and Learner-Content Interaction (LCI), and their impact on the students' perceived performance. The objectives of the study were to investigate the impact of LLI, LEI, and LCI on the students' perceived performance in accounting education during ODL. This study uses a quantitative method to examine the hypotheses by providing an online survey to UiTM accounting undergraduate students in Malaysia. In addition, the study utilised the Achievement Goal Theory. The results showcased a significant and positive relationship.

Keywords: COVID-19 Open and Distance Learning (ODL), Accounting Education, Interaction

Introduction

In 2020, the world began experiencing changes due to the sudden discovery of an evolved SARS-CoV-2 virus called the Coronavirus disease (COVID-19). The virus itself was highly contagious due to its airborne nature. The disease had spread like wildfire around the world and presently still continue to evolve within the human population. Malaysia's government has implemented the COVID-19 guidelines and Standards of Operation (SOP) to help the people continue their lives in this new environment. Anderson et al (2020) stated that individual behaviour was critical to controlling the spread of COVID-19. This virus outbreak had a significant impact on how many people view and live their lives. Everyone must adapt to these new norms to continue functioning, be it as individuals, businesses or countries.

Education has been among the industry's most severely impacted sector by the global health crisis (Schleicher, 2020; United Nations Educational Scientific and Cultural Organization [UNESCO], 2021). Most educational institutions in Malaysia, especially Higher Education Institutions (HEIs) have been operating and teaching using the Open and Distance Learning (ODL). In the early stages of the virus outbreak, all educational institutions used the ODL medium to continue the teaching and learning process. After two years of the outbreak, schools were gradually reopening (Rodzi, 2021). However, this was not the case for HEIs, as many continue to use the ODL medium to cope with the spread. The ODL itself was not a newly introduced medium of teaching and learning (Dzakiria & Christopher, 2010), but the hasty transition as well as the improper preparation had caused difficulties for the educational community. Stories of struggles by educators and students were common. Studies have shown a variety of challenges faced during online education, such as technological issues, time management or interaction (Basuony et al., 2020; Gopal et al., 2021; Musa et al., 2020). The number of dropouts since the start of this outbreak has also significantly increased (Lim, 2021).

There has been widespread scepticism regarding the educational quality and effectiveness of the ODL medium since its introduction during this global health crisis. Referring to Sustainable Development Goal (SDG) 4, it aims to provide students with access to a high-quality education. It is essential to conduct a thorough examination of the students' expectations regarding their overall performance during this COVID-19 ODL. Academic performance is not only an accreditation and evaluation criterion, but also the key to prepare the next generation for the future. It is an essential component of education as it is the result of students' efforts and it reflects the quality of the students produced by the institution (Martirosyan et al., 2014; Zeng & Wang, 2021). In the accounting industry, performance also plays a role as it showcases an individual's knowledge. According to Baird, Andrich, Hopfenbeck, and Stobart (2017), performance is used as a reason to imply capabilities. In addition, the performance of the students is a reflection of how effective the educational experience was for them.

The main difference between the traditional classroom and the ODL medium is the integration of technology. In order to adapt to the current events, educators conduct classes using technological tools such as Learning Management System (LMS) and interactive media (Basuony et al., 2020) as well as having a diverse learning format (Faize & Nawaz, 2020). Hence, one of the factors discovered to influence students' perceived performance is interaction. Past studies in accounting education stated that during COVID-19 online learning, it was discovered that there was a lack of interactions in class (Al-Sartawi & Abdalmuttaleb, 2020; Williams & Kollar, 2021). Interactions are essential in any teaching and learning environment as it enables the students to improve academically due to feedback (Ali & Ahmad, 2011; Musa et al., 2020), have a social presence (Buxton, 2014; Faize & Nawaz, 2020), and improve motivations due to educational challenges (Rahman, Uddin, & Dey, 2021; Thanasi-Boce, 2021). However, due to the virus outbreak, interactions have been limited and it has been a struggle for students to continue learning. Therefore, it is essential to study the impact of interactions on students' performances to ensure quality learning as it promotes inclusive, equitable, and lifelong learning for all.

In this study, the researchers solely focus on the accounting education community's struggles and the aspect of students' performance, as well as interactions as the factors that impact how performance is perceived during the COVID-19 ODL. Digitalising a course that is perceived as challenging has caused doubt among the community, especially when

unprepared (Sangster et al., 2020). Some students have doubted their ability to achieve a satisfactory result due to the challenges they faced during ODL. Academic performance is an important aspect to focus on as it is the outcome of the students' diligence.

Emphasising on this aspect may provide a new perspective, as the primary goal of HEIs is to provide valuable content to students and to encourage student satisfaction, which may lead to a good performance outcome. Thus, the objectives of this study are as follows;

1. To investigate the relationship between interactions and students' perceived performance in accounting education.

1(a). To investigate the relationship between Learner-Learner Interaction (LLI) and students' perceived performance in accounting education.

1(b). To investigate the relationship between Learner-Educator Interaction (LEI) and students' perceived performance in accounting education.

1(c). To investigate the relationship between Learner-Content Interaction (LCI) and students' perceived performance in accounting education.

Literature Review

Open and Distance Learning

ODL has been used in Malaysia since 1969 (Dzakiria & Christopher, 2010) and it continues to grow to this day. The United States Distance Learning Association (USDLA) defined ODL as the acquisition of knowledge and skills through the use of technology and other forms of distance learning to receive information and instruction (King et al., 2001). Before the technological breakthrough of interactive media, the mail system was the primary mode of communication for many years (Saettler, 1968). It is not simply a matter of introducing new communication technology; it is also a matter of "rethinking" the educational process. Technology has infiltrated today's educational experience. Various ODL and dual-mode institutions in Malaysia presented a variety of courses and programmes leading to various certifications with the goal of making university more accessible to students, particularly those who were unable to participate in traditional classes.

The most noticeable changes between traditional and online environments during the teaching and learning process is the shift from teacher-centred to student-centred. Dzakiria and Christopher (2010) stated that during ODL, students must be self-sufficient and engage in active learning. Aside from independence, technological skills and tools play a significant role because the medium is heavily reliant on them. The use of technology was not the learners' choice and some found it difficult to accept.

Accounting Education

The COVID-19 ODL challenges have also had an impact on the accounting education community. Most HEIs had no prior experience dealing with a global crisis like COVID-19 and had no contingency plans in place. As a result of their lack of preparation for the online education environment, the community was in a state of panic. Accounting entails putting theories to the test by solving practical questions, thus it is a struggle to teach and learn in an online environment. Some still prefer the traditional method, claiming it to be more effective in teaching accounting (Niemotko & Tolan, 2020). Accounting education may suffer quite significantly due to the shift. The accounting community has been dealing with a variety of issues as a result of the outbreak, including personal, social, technical, political, and economic infrastructures (Sangster et al., 2020). In order to adapt to current changes, this research will

focus on factors that may help contribute to the enhancement of the accounting education ODL experience.

Digitalisation of Accounting Education

Rehabilitating accounting education in order to make it more applicable to practise and produce more qualified accountants was emphasised as an important goal by the Accounting Education Commission (AEC). The accounting profession is a job that is constantly evolving, therefore standardising the technological environment is beneficial for students to stay relevant in the field. One of these initiatives by the AEC is the incorporation of technology into accounting education (Accounting Education Commission [AEC], 1990). Learning in a self-reliant environment develops the students to be self-sufficient.

Interaction

Interaction is limited in the context of online education, especially without the use of proper technological resources. Tait (2000) clarifies it as a means for students to receive feedback. According to Dzakiria (2012), interaction in ODL is essential for academic success. Online education studies continue to apply Moore's contention (1989) as there are numerous dimensions to learner interaction, including learner-learner, learner-educator, and learner-content interaction (Moore, 1989). Simply put, interaction is the process of creating a meaningful exchange of information and ideas between more than two parties.

Learner-Learner Interaction (LLI)

According to Dzakiria (2012), an interaction is a term that refers to a conversation that takes place between two or more students. Previous research has highlighted the difficulties in learner-learner interaction, such as demotivation due to stress and uncooperative tasks (Dzakiria, 2012). Nevertheless, it was stated that actively participating and interacting with peers in ODL improved learning. Group work interaction and discussions help learners learn course content and reduce isolation and boredom. Kuo (2010) clarified when courses are lacking in collaborative activities in online settings, learner–learner interaction might become insignificant. According to Rahman et al (2021), students are interested in engaging with one another during ODL but such engagement has little importance on their overall perception of the online medium. Gray and DiLoreto (2016) found that learner interactions increased perceived student learning.

Learner-Educator Interaction (LEI)

According to Dzakiria (2012), two-way interaction between the course educator and students. Usually, the interaction happens in the form of guidance, support, evaluation, and evaluation. Past studies have clarified the importance of an educator's presence in an online learning environment due to their role as facilitator of the class (Ali & Ahmad, 2011; Thanasi-Boçe, 2021). Consistent and effective learner-educator interaction fosters an online learning environment that motivates students to commit to the course and achieve at a higher academic level (Jaggars & Xu, 2016). Students are able to reflect and learn with proper feedback from educators (Dzakiria, 2012). Past studies have recommended that it is essential to concentrate on the interaction between students and educators.

Learner-Content Interaction (LCI)

It is defined as a one-way process of elaborating and reflecting on educational content (Moore, 1989). According to Dzakiria (2012), due to the use of internet related tools, some students felt lost as they were unfamiliar with the tools and preferred traditional ways of listening to the course content. The issue of technological incompetency is a problem as ODL is more student-centred. Past studies highlighted the importance of this interaction due to the student-centred nature of the online environment (Kuo, 2010; Kuo et al., 2014). Students can easily learn the materials and enhance their understanding of the course material through proper interaction.

Perceived Performance

Academic performance is defined by Lamas (2015) as the result of learning, which is initiated by educators' teaching activities and produced by students. According to Mensink and King (2020), performance is the result of student-educator efforts and demonstrates students' interest in their studies. Performance is an important component to look into as the students' future depends on the performance outcome. Thus, it is regarded as the focal point and the entire educational system revolves around student achievement. Hence, researching this will provide information for HEIs in handling COVID-19 ODL.

Achievement Goal Theory

Achievement goal theory describes the individual's "orientation" toward the task or situation, their general focus or purpose for achievement and not just their specific target goal for the task. The theory focuses on the relationship between motivational beliefs and significant cognitive, affective and behavioural outcomes (Kaplan & Maehr, 2007; Nadon et al., 2020). The learning environment also has an effect on students' performance, as it is an efficient means of achieving goals (Ames & Archer, 1988). With the advancement of technology, the educational community has increasingly utilised technological tools in a classroom setting as an efficient method to deliver knowledge throughout the years. This is especially relevant in the present context, where technology is viewed as a means to continue education. Gopal et al. (2021) clarified that the theory is mostly used to understand students' performance in a classroom environment, including in a technological environment. Since ODL is a medium heavily reliant on technology as well as a more student-centred environment, this theory can provide a basis for predicting students' coping mechanisms and behaviour in the new learning environment.

Hypotheses of Study

Based on the discussed literature, the following are the hypotheses constructed for this study:

H1. Learner-Learner Interaction (LLI) has a significant positive relationship with students' perceived performance during COVID-19 ODL.

H2. Learner-Educator Interaction (LEI) has a significant positive relationship with students' perceived performance during COVID-19 ODL.

H3. Learner-Content Interaction (LCI) has a significant positive relationship with students' perceived performance during COVID-19 ODL.

Research Method

Population and Sample

The population for this study is the accounting students registered in undergraduate (diploma and degree) studies at Universiti Teknologi MARA (UiTM) in Malaysia. The sample is determined by using stratified sampling, giving the collected data an equal probability of being included in the sample and being equally represented. For the sample size, this study applied the Krejcie Morgan Table by (Krejcie and Morgan, 1970).

The population of the study is a total of 13,544, and in accordance with the Krejcie Morgan Table as a reference, we can determine that the sample size should be 375 students, given that the total population for this study is approximately 15,000. In order to draw accurate conclusions from this study, the researchers required the participation of a total of 375 accounting students.

Research Design and Research Instrument

This study used a quantitative method to examine the hypotheses as the data was observable and measurable. The questionnaire was in English and consisted of two sections. The first section described the demographics and general information of the respondents. The second section included the instruments for each variable, for a total of 26 items to measure both the dependent variable (Perceived Performance) and independent variables (LLI, LEI, and LCI). The independent variables used 6 items each to measure LLI, LEI and LCI, which were adopted from (Ali and Ahmad, 2011; Barbera et al., 2013; Kuo, 2010). For the dependent variable, the study used 8 items to measure perceived performance, adopted from Tsai, Chaichanasakul, Zhao, Flores, and Lopez (2014). The questionnaire used a 5-point Likert scale that goes from “strongly disagree” (1) to “strongly agree” (5).

The questionnaire was distributed using a Google Form for easy access and then was shared with the Head of the Accountancy Faculty for each UiTM campus. For full details of the questionnaire, kindly refer to Appendix 1. The data was then tested using IBM SPSS 27 for descriptive statistical analysis and WarpPLS 8.0, a Partial Least Square - Structural Equation Modelling (PLS-SEM) software, for inferential statistical analysis. Through the collected data, the relationship between the variables can be measured and explained. Based on the discussion presented in the literature, three hypotheses and a research framework were developed for this study (Figure 1).

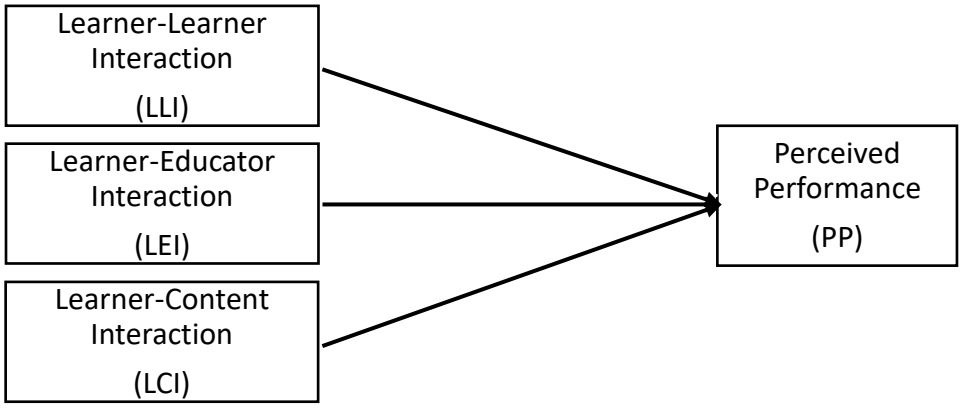

Figure 1: Research Framework

Result

Respondence Demographic

The collected response for this study was 429 undergraduate accounting students enrolled at UiTM campuses in Malaysia. The response obtained met the Krejcie Morgan Table's sample size requirement. The collected data was screened before it was used for data analysis.

The demographic profile of the respondents (N=429) for this study were mainly female respondents with 348 (80.97%), while the remaining were male with 81 (19.03%). Most respondents were within the age range of 20 to 25 years old with a total of 309 (71.85%), followed by under 20 years old at 118 (27.53%). A minority were aged above 26 years old with 2 students (0.62%). The respondent majority were at diploma level with 302 students (70.39%). The remaining were degree students at a total of 127 (29.61%). For the current year of study, the majority were second year students at 146 (33.99%), followed by first year students at 123 (28.65%), third year students with 107 (24.95%) and the remaining were fourth year students with 53 (12.41%). Full time students were the majority respondents of this questionnaire at a total of 424 (98.60%) while the remaining were part time students. Most of the campuses responded to the questionnaire, except for UiTM Dungun Campus, Terengganu and UiTM Segamat Campus, Johor.

Data Analysis

To ensure that quality data was attained, preliminary steps were initiated prior to any formal statistical analysis. Ahmad, Smith, Ismail, and Roni (2013) suggested that during Preliminary Data Analysis (PDA), researchers must check for any missing data, monotone responses, inspect for outliers and run tests of normality, reliability, and validity on the instruments used. Furthermore, additional testing must be done for non-response bias and common method bias.

The returned questionnaires for this study had no missing data and any monotone responses were deleted. Tests for outliers and assumption of normality were not required as the study used a PLS-SEM software, a non-parametric tool for analysing data using ranks or medians, thus were robust to outliers (Kock, 2022; Rorden etal., 2007) and the data itself were non-normal distribution data. Nevertheless, an evaluation was performed to ensure that the data were not too far from normal as this will affect the study's conclusions. According to Kock (2016), skewness and kurtosis values above 2.828 and 12 indicate a high non-normal data distribution. Table 1 displayed that each variable used were within the range recommended by (Kock, 2016).

Table 1
Normality test

Variable	Skewness	Kurtosis
LLI	-0.541	0.375
LEI	-0.499	-0.006
LCI	-0.422	-0.154
Perceived Performance	-0.433	0.473

To ensure there was no non-response bias, the researchers used the early and late response method suggested by (Armstrong and Overton, 1977). A Mann-Whitney U test was recommended by Ahmad (2016) for non-normal distribution data. A large p-value (> 0.05) in the Mann-Whitney U test indicates that the distribution between the compared groups was

identical. For common method bias, it was inspected using Full Collinearity Variance Inflation Factors (VIFs) (Kock, 2022). The value for Full Collinearity VIFs must be 3.3 or lower to indicate no common method bias. According to Table 2, the data in this study was free of both biases.

Table 2
Non-response bias and Common method bias

Variable		N	Mean	Standard Deviation	p-value*	Full Collinearity VIFs
LLI	Early	107	3.997	0.67980	0.718	1.992
	Late	107	4.078	0.60008		
LEI	Early	107	3.891	0.65758	0.240	1.981
	Late	107	4.002	0.64563		
LCI	Early	107	4.052	0.71095	0.813	2.324
	Late	107	4.103	0.62052		
Perceived Performance	Early	107	3.682	0.73676	0.330	2.097
	Late	107	3.756	0.73131		

Measurement Model

The descriptive statistics were produced using IBM SPSS 27 for basic information about each variable. The following table displays the result. The highest mean was perceived performance with a 4.058, indicating that during ODL accounting students expected a high outcome. In contrast, the lowest was LLI with 3.751, though it still demonstrates adequate interaction between classmates.

Table 3
Descriptive Statistics

Variable	Number of items	Mean	Standard Deviation
LLI	6	3.751	0.72827
LEI	6	4.032	0.63541
LCI	6	3.934	0.65790
Perceived Performance	8	4.058	0.64447

For the reliability test, it was determined by using Cronbach's Alpha and Composite Reliability (CR). The aim of this test is to assess the instrument's internal consistency and reliability. Hair, Black, Babin, and Anderson (2019); Nunnally (1978); Urbach and Ahlemann (2010) stated that Cronbach's Alpha acceptable value is above 0.70. Additionally, Composite Reliability (CR) can also be used to ensure reliability and its threshold value is above 0.7 (Hair et al., 2019; Nunnally, 1978). According to Table 4, it clearly displays that both CR and CA exceed those recommended value of above 0.70. This implies that the instruments in the model were adequately measured, making the model measurements reliable. Hence, the data is considered appropriate to be used in data analysis.

Table 4
Reliability variables understudy

Variable	Number of items	Cronbach's Alpha (CA)	Composite Reliability (CR)
LLI	6	0.863	0.898
LEI	6	0.864	0.898
LCI	6	0.860	0.896
Perceived Performance	8	0.925	0.939
Total	26		

The validity of the instrument in this study was tested based on the instruments' convergent validity and discriminant validity. The researchers used the Average Variance Extracted (AVE), factor loading, and Full Collinearity VIFs to see the validity of the instruments used in the study. Hair et al (2019) suggested that the adequate AVE value for a variable is above 0.50 and, ideally, a value above 0.70 is desired for factor loading, but above 0.50 is also considered sufficient for a study. The value for Full Collinearity VIFs must be 3.3 or lower so that multicollinearity is not presented among variables (Kock, 2022). According to Table 5, all the variables used in this study achieved all the required thresholds.

Table 5
Convergent Validity variables understudy

Variable	Factor Loading	AVE	Full Collinearity VIFs
LLI	0.785	0.594	1.992
	0.734		
	0.815		
	0.759		
	0.742		
	0.789		
LEI	0.713	0.596	1.981
	0.785		
	0.808		
	0.733		
	0.757		
	0.831		
LCI	0.813	0.593	2.324
	0.863		
	0.839		
	0.755		
	0.694		
	0.632		
Perceived Performance	0.828	0.658	2.097
	0.790		
	0.774		
	0.810		
	0.830		
	0.753		
	0.844		
	0.855		

Additionally, the instruments' discriminant validity was assessed using the Fornell and Larcker criterion (Fornell & Larcker, 1981) and a newly introduced method by Henseler, Ringle, and Sarstedt (2015); Heterotrait-monotrait (HTMT). When compared to the Fornell and Larcker criterion, HTMT was described as highly sensitive in detecting discriminant validity (Ab Hamid, Sami, & Sidek, 2017). For the Fornell and Larcker criterion, the square root of the AVE should be higher than any of the correlations involving the latent variable, and the recommended HTMT value must be below 0.85 (Clark & Watson, 1995; Kline, 2011). Tables 6 and 7 show the Fornell and Larcker criterion and the HTMT criterion, both of which reach the acceptable value. Thus, discriminant validity has been established. To summarise, all the variables demonstrated strong reliability and validity.

Table 6
Discriminant validity Fornell and Larcker criterion

	LLI	LEI	LCI	Perceived Performance
LLI	0.771			
LEI	0.618	0.772		
LCI	0.631	0.617	0.770	
Perceived Performance	0.580	0.593	0.677	0.811

Table 7
Discriminant validity HTMT criterion

	LLI	LEI	LCI	Perceived Performance
LLI				
LEI	0.717			
LCI	0.733	0.715		
Perceived Performance	0.649	0.667	0.758	

WarpPLS provides model fit and quality indices in testing the research model. The recommended value suggested by Kock (2022) must be fulfilled to ensure it is a useful set of model quality. It is recommended that the p-value is significant for APC, ARS, and AARS, which is equal to or lower than 0.05 to achieve overall predictive and explanatory quality of the model. The AVIF and AFVIF must both be equal to or lower than 3.3, especially in a research model, to ensure that multicollinearity is non-existent. The Tenenhaus GoF is used to measure a model's explanatory power, which for this model displayed a large explanatory power. Next, the SPR index is a measurement of the extent to which a model is free from Simpson's paradox and ideally it should be equal to 1, though above 0.70 is also acceptable. The same recommended value also applies to RSCR, which measures the extent the model is free from negative R-squared contribution. As displayed in table 8, this study research model fulfilled all the criteria, indicating it is a good fit model.

Table 8
Model Fit

	Outcome	Criteria	Perception
Average path coefficient (APC)	0.276, P<0.001	P<0.05	Acceptable
Average R-squared (ARS)	0.529, P<0.001	P<0.05	Acceptable
Average adjusted R-squared (AARS)	0.526, P<0.001	P<0.05	Acceptable
Average block VIF (AVIF)	1.942	acceptable < 5, ideally < 3.3	Ideal
Average full collinearity VIF (AFVIF)	2.098	acceptable < 5, ideally < 3.3	Ideal
Tenenhaus GoF (GoF)	0.568	large > 0.36	Large
Simpson's paradox ratio (SPR)	1.000	acceptable > 0.7, ideally = 1	Ideal
R-squared contribution ratio (RSCR)	1.000	acceptable > 0.9, ideally = 1	Ideal

Structural Model

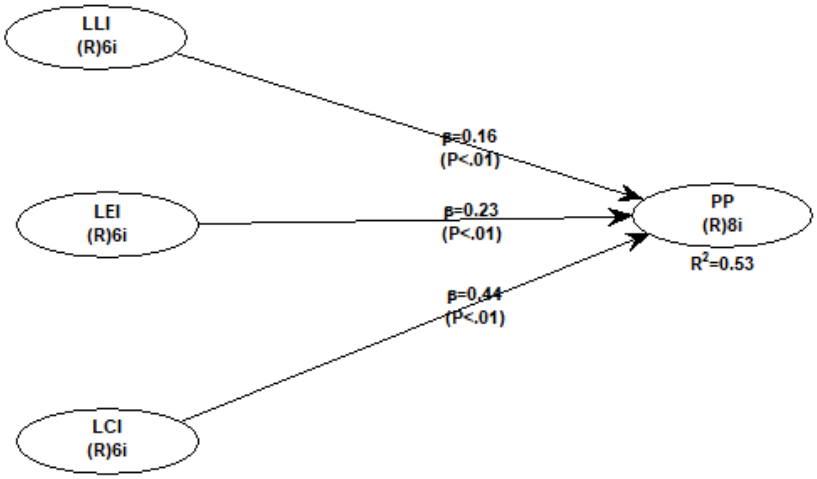

Figure 2: Structural Model Result

Figure 2 shows the result of the structural model of this study that displayed the R-square (R2), the path coefficient and p-value for each relationship. The result of the analysis shows that LLI, LEI and LCI predicted perceived performance during COVID-19 ODL as the coefficient of determination, R^2, is 0.529 (52.9%). According to Hair et al. (2019), the R^2 in the study showcases moderate explanatory power.

The findings for this study were tabulated in Table 9, which displays the path coefficient, p-value, t-value, the effect size, f^2 and the 95% confidence interval (CI). It was found that all the hypotheses were supported as all the findings displayed significant (P< 0.05) and positive relationships with perceived performance. As hypothesised for H1, it was found that the variable does have a significant and positive relationship with perceived performance (H1: β = 0.159, P<0.001) with a small effect size (f^2 = 0.093) as it was lower than 0.15 (Cohen, 1988). The next hypothesis (H2) also displayed a significant and positive relationship with perceived

performance (H2: β = 0.231, P<0.001), also with a small effect size (f^2 = 0.139). Lastly, H3 was also supported as it was found to have a significant and positive relationship with perceived performance (H3: β = 0.438, P<0.001). However, LCI has a medium effect size (f^2 =0.298) since its value is greater than 0.15 (Cohen, 1988).

Table 9
Summaries of Path Analysis Result

Path	β	t-value	p-value	f^2	95% CI	Result
LLI → PP	0.159	3.364	<0.001	0.093	0.066, 0.252	Support H1
LEI → PP	0.231	4.926	<0.001	0.139	0.139, 0.323	Support H2
LCI → PP	0.438	9.604	<0.001	0.298	0.348, 0.527	Support H3

Cohen (1988), effect sizes can be small (0.02), medium (0.15), or large (0.35)

The findings show that LCI has the highest impact on perceived performance since it has a moderate effect size while the other factors only showcase a small impact. Cohen (1988) explained it is common in social science that the effect sizes are small and medium. The result support H1, H2 and H3 having an influence on the dependent variable, but perhaps other possible variables that may contribute to the improvement in students' perceived performance during COVID-19 ODL can be added to the model. Moksony and Heged (1990) stated that the remaining R2 value means that the dependent variable is influenced by a variety of additional factors other than the ones included in the analysis.

Discussion

In the present study, the authors studied the relationship between Interactions and students' perceived performance during a global health crisis among accounting students. Transitioning from a traditional classroom to an online environment was unexpected and has caused limited interaction during the teaching and learning process. Hence, a detailed discussion of the hypotheses and findings based on the survey is described in the following section.

H1. Learner-Learner Interaction has a significant positive relationship with students' perceived performance during COVID-19 ODL.

H2.

For the first hypothesis, the results supported the assertations of H1 as seen by the significant and positive relationship with the student's perceived performance. This shows that accounting education courses were integrated with collaborative and group tasks, hence the students found that it impacts their expected outcome. The finding is consistent with past studies (Dzakiria, 2012; Gray & DiLoreto, 2016). The descriptive statistics also showed that the students received sufficient interaction between classmates. However, the factor showcased the highest variability in the response. It is recommended for the educator to play an important role as facilitator to prevent any negative implication as Dzakiria (2012) described within the classroom during ODL.

H3. Learner-Educator Interaction has a significant positive relationship with students' perceived performance during COVID-19 ODL.

The next hypothesis also showcased a result that supported the assertions of H2, as seen by the significant and positive relationship with the student's perceived performance. Indicating educators' guidance and feedback influence students' perceived outcome during ODL. The findings were illustrated in a past study (Jaggars & Xu, 2016). In understanding the course perceived as difficult, the educators' presence plays an important role. The descriptive statistics also displayed that sufficient interaction from the educator was received during ODL. Thanasi-Boçe (2021) suggested that during COVID-19, it would be necessary to modify the academic role of the instructor from that of a knowledge conveyer to that of a learning motivator. Having consistent interactions help more than just the students' outcome.

H4. Learner-Content Interaction has a significant positive relationship with students' perceived performance during COVID-19 ODL.

H5.

For the last hypothesis, the results also supported the assertions of H3, as seen by the significant and positive relationship with the student's perceived performance. Furthermore, this factor has the highest impact on perceived performance in this study, highlighting the importance of the content of education during ODL. Since the environment is more student-centred, students would supposedly have the most interaction with educational materials. It is recommended that the content prepared by the educators or faculty members be simplified for the students' understanding as well as to retain their interest. Thanasi-Boce (2021) proposed a diverse technological application usage to prevent demotivation, in addition to application of video conferencing, chat and forums to enrich learning.

Furthermore, these findings were consistent with the achievement goal theory, which links motivational beliefs to outcomes (Kaplan & Maehr, 2007; Nadon, Babenko, Chazan, & Daniels, 2020) as well as the importance of the learning environment as a means of achieving goals (Ames & Archer, 1988). The study found that with adequate interactions and a learning environment that encourages participation, students engage better and are motivated in learning; they perceive their outcomes positively, regardless of ODL challenges.

Conclusion

The conclusion for this study, based on the discussed findings, is that it is proven that sufficient interaction is needed during the teaching and learning processes in accounting education, as all the hypotheses were found to be supported. Students must receive adequate communication as well as academic assistance from their educators, peers, and educational material during ODL. With sufficient interaction, students will expect a positive academic outcome. In the midst of the global health crisis, educational institutions shifted quickly to an online learning environment, as it has proven to be a close substitute for traditional classroom learning. The transition was unanticipated and haphazard but learning continued. The results of this study clearly suggest that all types of interactions have an impact on students' perceived performance, differing from some past studies and demonstrated the necessity of interaction in accounting education. Educational institutes, especially HEIs, should consider this aspect as it has the possibility of improving students' expectations as well as their experiences during ODL. Students are important human capital for a country's future growth. Understanding the factors that contribute to improving quality education would be beneficial for the country.

Limitation and Recommendation

In terms of limitations, the data collected was only obtained at one university and solely focused on the accounting education community, thus restricting its application in other circumstances. As a result, future research could look into various demographic groups in order to broaden the findings. Furthermore, the study uses a mono-method approach; in the future, researchers can use a mixed-method approach to assess the model's credibility. Finally, an extended study should be done to identify other factors that affect students' perceived performance during the COVID-19 ODL since the empirical evidence shows its existence.

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References

Ab Hamid, M., Sami, W., & Sidek, M. M. (2017). Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. Paper presented at the Journal of Physics: Conference Series.

Accounting Education Commission [AEC]. (1990). Objective of education for accountants: Position statement number one. Issues in Accounting, 5, 307-312.

Ahmad, M. A. N. (2016). The impact of computerised accounting information systems on small and medium enterprises' information quality, firm strategic decision making and firm performance. Edith Cowan University. Retrieved from https://ro.ecu.edu.au/theses/1928

Ahmad, M. A. N., Smith, M., Ismail, Z., & Roni, M. (2013). The relationship between executive vision, computerised accounting information system capability, employee it skills and firm performance. Paper presented at the 4th International Conference on Public Policy and Social Science, UiTM Sabah Malaysia, Sutera Harbour Resort, Kota Kinabalu, Sabah, Malaysia.

Al-Sartawi, M., & Abdalmuttaleb, M. (2020). E-learning improves accounting education: case of the higher education sector of Bahrain. Paper presented at the European, mediterranean, and middle eastern conference on information systems.

Ali, A., & Ahmad, I. (2011). Key factors for determining student satisfaction in distance learning courses: A study of Allama Iqbal Open University. Contemporary Educational Technology, 2(2), 118-134.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. Journal of educational psychology, 80(3), 260.

Anderson, R. M., Heesterbeek, H., Klinkenberg, D., & Hollingsworth, T. D. (2020). How will country-based mitigation measures influence the course of the COVID-19 epidemic? The lancet, 395(10228), 931-934.

Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. Journal of marketing research, 14(3), 396-402.

Baird, J.-A., Andrich, D., Hopfenbeck, T. N., & Stobart, G. (2017). Assessment and learning: Fields apart? Assessment in Education: Principles, Policy & Practice, 24(3), 317-350.

Barbera, E., Clara, M., & Linder-Vanberschot, J. A. (2013). Factors influencing student satisfaction and perceived learning in online courses. E-learning and Digital Media, 10(3), 226-235.

Basuony, M. A., EmadEldeen, R., Farghaly, M., El-Bassiouny, N., & Mohamed, E. K. (2020). The factors affecting student satisfaction with online education during the COVID-19 pandemic: an empirical study of an emerging Muslim country. Journal of Islamic Marketing.

Buxton, E. C. (2014). Pharmacists' perception of synchronous versus asynchronous distance learning for continuing education programs. American Journal of Pharmaceutical Education, 78(1).

Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. Psychological Assessment, 7(3), 309–319.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences: Hillsdale, NJ: Lawrence Erlbaum.

Dzakiria, H. (2012). Illuminating the Importance of Learning Interaction to Open Distance Learning (ODL) Success: A Qualitative Perspectives of Adult Learners in Perlis, Malaysia. European Journal of Open, Distance and E-learning.

Dzakiria, H., & Christopher, A. (2010). Interaction issues in Malaysia open distance learning (ODL).

Faize, F. A., & Nawaz, M. (2020). Evaluation and Improvement of students' satisfaction in Online learning during COVID-19. Open Praxis, 12(4), 495-507.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of marketing research, 18(1), 39-50.

Gopal, R., Singh, V., & Aggarwal, A. (2021). Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19. Education and Information Technologies, 1-25.

Gray, J. A., & DiLoreto, M. (2016). The effects of student engagement, student satisfaction, and perceived learning in online learning environments. International Journal of Educational Leadership Preparation, 11(1), n1.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate Data Analysis (8 ed.). Hampshire, United Kingdom: Cengage Learning EMEA.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the academy of marketing science, 43(1), 115-135.

Jaggars, S. S., & Xu, D. (2016). How do online course design features influence student performance? Computers & Education, 95, 270-284.

Kaplan, A., & Maehr, M. L. (2007). The contributions and prospects of goal orientation theory. Educational psychology review, 19(2), 141-184.

King, F. B., Young, M. F., Drivere-Richmond, K., & Schrader, P. (2001). Defining distance learning and distance education. AACE journal, 9(1), 1-14.

Kline, R. B. (2011). Principles and Practice of Structural Equation Modeling: New York: Guilford Press.

Kock, N. (2016). Non-normality propagation among latent variables and indicators in PLS-SEM simulations. Journal of Modern Applied Statistical Methods, 15(1), 16.

Kock, N. (2022). WarpPLS user manual: Version 8.0. ScriptWarp Systems: Laredo, TX, USA.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and psychological measurement, 30(3), 607-610.

Kuo, Y.-C. (2010). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. (Doctor of Philosophy (PhD) Dissertation), Utah State University, All Graduate Theses and Dissertations. (741)

Kuo, Y.-C., Walker, A. E., Schroder, K. E., & Belland, B. R. (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. The internet and higher education, 20, 35-50.

Lamas, H. A. (2015). School Performance. Journal of Educational Psychology-Propositos y Representaciones, 3(1), 351-385.

Lim, I. (2021, 5 December). Education Ministry: 21,316 students quit school during Covid-19 months of March 2020 to July 2021, Malay Mail. Retrieved from https://www.malaymail.com/news/malaysia/2021/12/05/education-ministry-21316-students-quit-school-during-covid-19-months-of-mar/2026057

Martirosyan, N. M., Saxon, D. P., & Wanjohi, R. (2014). Student satisfaction and academic performance in Armenian higher education. American International Journal of Contemporary Research, 4(2), 1-5.

Mensink, P. J., & King, K. (2020). Student access of online feedback is modified by the availability of assessment marks, gender and academic performance. British journal of educational technology, 51(1), 10-22.

Moksony, F., & Heged, R. (1990). Small is beautiful. The use and interpretation of R2 in social research. Szociológiai Szemle, Special issue, 130-138.

Moore, M. G. (1989). Three types of interaction: Taylor & Francis.

Musa, A. H., Rosle, A. N., Baharuddin, F. N., & Sara, S. (2020). The Effectiveness of Online Distance Learning (ODL) Approach in University: A Respond of Covid-19 Pandemic Crisis. Journal of Academic Research in Business and Social Sciences, 10(9), 1069-1076.

Nadon, L., Babenko, O., Chazan, D., & Daniels, L. M. (2020). Burning out before they start? An achievement goal theory perspective on medical and education students. Social Psychology of Education, 23(4), 1055-1071.

Niemotko, T. J., & Tolan, M. (2020). Online accounting courses: transition and emerging issues. The CPA Journal, 90(5), 11-11.

Nunnally, J. C. (1978). Psychometric theory McGraw-Hill book company. INC New York.

Rahman, M. H. A., Uddin, M. S., & Dey, A. (2021). Investigating the mediating role of online learning motivation in the COVID-19 pandemic situation in Bangladesh. Journal of Computer Assisted Learning.

Rodzi, N. (2021, 12 September). Schools in several Malaysian states to reopen on Oct 3 at 50% capacity, The Straits Times. Retrieved from https://www.straitstimes.com/asia/se-asia/schools-in-several-malaysian-states-to-reopen-on-oct-3-at-50-per-cent-capacity

Rorden, C., Bonilha, L., & Nichols, T. E. (2007). Rank-order versus mean based statistics for neuroimaging. Neuroimage, 35(4), 1531-1537.

Saettler, P. (1968). A history of instructional technology.

Sangster, A., Stoner, G., & Flood, B. (2020). Insights into accounting education in a COVID-19 world. Accounting Education, 29(5), 431-562.

Schleicher, A. (2020). The impact of COVID-19 on education: Insights from education at a glance 2020. Retrieved from oecd. org website: https://www. oecd. org/education/the-impact-of-covid-19-on-education-insights-education-at-a-glance-2020. pdf.

Tait, A. (2000). Planning student support for open and distance learning. Open Learning: The Journal of Open, Distance and e-Learning, 15(3), 287-299.

Thanasi-Boçe, M. (2021). The Role of the Instructor, Motivation, and Interaction in Building Online Learning Satisfaction during the COVID-19 Pandemic. Electronic Journal of e-Learning, 19(5), pp401-415.

Tsai, C.-L., Chaichanasakul, A., Zhao, R., Flores, L. Y., & Lopez, S. J. (2014). Development and validation of the strengths self-efficacy scale (SSES). Journal of Career Assessment, 22(2), 221-232.

United Nations Educational Scientific and Cultural Organization [UNESCO]. (2021). One year into COVID-19 education disruption: Where do we stand? Retrieved 13 April, 2022, from https://en.unesco.org/news/one-year-covid-19-education-disruption-where-do-we-stand

Urbach, N., & Ahlemann, F. (2010). Structural equation modeling in information systems research using partial least squares. Journal of Information technology theory and application, 11(2), 5-40.

Williams, V., & Kollar, R. (2021). Impact of COVID-19 in Accounting Education. Journal of Digital Business System and Management Vol, 1(1), 45-50.

Zeng, X., & Wang, T. (2021). College Student Satisfaction with Online Learning during COVID-19: A review and implications. International Journal of Multidisciplinary Perspectives in Higher Education, 6(1), 182-195.

Appendix

Questionnaire

Interaction

Label	Question
LLI 1	Group activities during class gave me chances to interact with my classmates.
LLI 2	Online comments by other participants helped me learn.
LLI 3	I contributed to the learning environment by responding to my peers.
LLI 4	I learned to value others point of view.
LLI 5	I received lots of feedback from my peers.
LLI 6	I had numerous interactions related to the course content with my fellow peers.
LEI 1	I had numerous interactions with my lecturer during ODL.
LEI 2	All assignments were returned with useful feedback from my lecturer.
LEI 3	My lecturer provided individualised guidance that met my needs.
LEI 4	My lecturer regularly posted some questions for students to discuss.
LEI 5	My lecturer was quick in responding to my questions.
LEI 6	I received enough feedback from my lecturer when I needed it.
LCI 1	Online course materials helped me to understand the class content better.
LCI 2	Online course materials stimulated my interest in this course.
LCI 3	Online course materials helped relate my personal experience to new concepts or new knowledge.
LCI 4	It was easy for me to access the online course materials.
LCI 5	I often looked at other online resources as a supplement to the course materials.
LCI 6	I spent lots of time going over the course materials.

Perceived Performance

Label	Question
PP 1	I believe I will receive an excellent grade in this class during ODL.
PP 2	I'm certain I can understand the most difficult material presented in this course during ODL.
PP 3	I'm confident I can learn the basic concepts taught in this course during ODL.
PP 4	I'm confident I can understand the most complex material presented by my lecturer during ODL.
PP 5	I'm confident I can do an excellent job on the assignments during ODL.
PP 6	I expect to do well during ODL.
PP 7	I'm certain I can master the skills being taught in classes during ODL.
PP 8	Considering the difficulty of this course, the teacher, and my skills, I think I will do well in ODL.