Analysis of Factors Influencing the Effectiveness of E-Learning in Public Sector College Students in Indonesia

Siti Ma'rifah (sitimarifahma@staisa.ac.id)
Sekolah Tinggi Islam Shalahuddin Al-Ayyubi

Abstract

The research objective to investigate the impact of course design, managerial supports, technical support, administrative support, learner characteristics on e-learning effectiveness among management studies students in Indonesia. For this purpose, data was collected from public sector universities 350 management studies students in Indonesia. Quantitative research approach and cross sectional research design was applied. The Partial Least Square (PLS)-Structural Equation (SEM) technique results indicates that technical supports, course design, administration support, learner's characters, management support and instructor character have beneficial and considerable impact on the efficacy of e- learning. Similarly, results indicate that e-learning effectiveness has positive and significant impact on e-learning perception. The e-learning perception also has positive and significant impact on e-learning quality. The research added a body of literature with the significance findings that could add a body of literature in the extant literature that could help to investigate the future research in new area.

Keywords: E-learning, Govermenr Institutions, Indonesia

Introduction

One of the most important fundamental elements which contributes towards a nation's progress and development is education (Titie, Suthathip, Youji, Pornpimol, & Thepchai, 2018). A system that fosters relationships between organizations and different nations is education. The key element that determines the quality of education is the system's results. As the intended audience for the product, students must be considered in the evaluation. In order to prepare students for a competitive world, it is important to ensure that both the visible (course materials) and invisible (delivery to students) components of educational quality are met (Ellis & Goodyear, 2013). Because of the reported connection between e-learning and increased student motivation, higher education institutions have decided to phase out traditional in-person classroom instruction in favor of online instruction (Harandi, 2015). In addition to this, the e-learning platform is better suited for college students because it encourages active participation from students (Elumalai et al., 2021). The method by which the academic goals, features, and resources of a conventional institution toward an online setting has been known as e-learning. This procedure is applied in educational contexts. It is crucial to take into account that changing the manner of education does not cause the volume or scope of the research topic presented to decrease and be lost (Olszewska, 2020).

The concentration on employing modern technology for the purpose of

assess education as well as teaching approaches seems to be the perception's distinguishing a consistent feature in each of their compositions (Aparicio, Bacao, & Oliveira, 2016). According to Catálan, Catálan, and Vázquez (2019), e learning may increase self-assurance, reduce stress, and foster greater concern and empathy. However, the instructors find the e-learning platform to be very dynamic because the sessions can be planned with visual aids and engaging learning (Tomas, Evans, Doyle, & Skamp, 2019). E-learning platforms are useful tools for higher education's online classes (Chivu, Turlacu, Stoica, & Radu, 2018). Applications for online learning should be simple to install and usage (Kimathi & Zhang, 2019). Numerous academics agree that the difficulties posed by universal learning norms have had the greatest impact on education (Rapanta, Botturi, Goodyear, Guàrdia, & Koole, 2020). Firstly, Many management science students find it difficult to completely establish the operational skills necessary to complement their academic learning (Kaushal & Srivastava, 2021). Secondly, because industry placement and internship opportunities have been suspended in many institutions and nations, management studies students are currently unable to take advantage of them. Additionally, because practical exams have been rescheduled or cancelled, particularly for final-year management studies students; there has been less direct physical contact between students and teachers. Third, due to the pressing requirement to switch to online forms, both logistical as well as technological limitations of virtual format compel certain employees of teaching team should plan and teach classes from homes (Hodges, Moore, Lockee, Trust, & Bond, 2020).

Traditional teaching approaches were favored by management students, who valued having their lecturer in the same room as them, the instructor's ability to explain things was valued more highly by those who preferred videoconferencing than being in the same room as the instructor (Nair & George, 2016). However, resources such as fast computers and Internet access are in short supply, making it difficult to provide online education. Another problem affecting e-learning today is students' resistance to switching from in-person instruction to online learning settings (Titie et al., 2018). For improving the e-learning, administrative support, learner's characters, technical support, course design, instructor character and management support played an important role (Aung & Khaing, 2016; Nyathi, 2022). When the e-learning of the student is increased then the learner's quality also improved which helps to improve the effectives of e-learnings.

After seeking the significance of previous factors, previous studies indicates that previous literature have major focused on developed economies (Zhang, Zhou, Briggs, & Nunamaker Jr, 2006) while have little attention on developing economies especially on

Indonesia . Moreover, previous literature also have major attention on other variables technical supports, course design, administration support, learners characters, and instructor character (Khairy & Abdelaal, 2023) while have little attention on six indicator management support . Also, in previous literature, the core respondents were hospitality departments while has little attention on other management studies department studies. Therefore, based on previous gaps, research has formulated on the context of Indonesia educational institutions especially in the context of management studies students. The research was divided into five sections, introduction, literature review, research design, data analysis and discussion and future directions.

Literature Review

The evolution of teaching practices and dissemination mechanisms is intrinsically linked to the progress of modern technologies (Hoq, 2020). Among these contemporary technologies that allows for versatility in education and learning seems to be e-learning environment (Bolar, Mallya, Roy, Payini, & Thirugnanasambantham, 2022). E-learning, that comes with a variety of definitions, is "learning that is mediated by the Internet" compared to traditional face-to-face instruction which occurs during class (Rapanta et al., 2020). In several developing nations, e-learning—also known as MOOCs, Internet-based learning, online education, and cyber learning—is viewed as a cutting-edge strategy for reducing the gaps in educational opportunity (Asdaque, Rizvi, Jumani, & Ahmed, 2018).

Through an online connection, both the teacher and the students are able to join a virtual classroom and take part in educational activities at their own convenience and at their own location. As class discussions move on, students have time to formulate thoughtful responses before being called on to provide them (Khairy & Abdelaal, 2023). This has been cited as one of the main advantages of online education by academics. As per the study of Martínez-Argüelles and Batalla- Busquets (2016), in a conventional classroom setting, teachers and students engage in free-flowing conversation. However, e-learning offers a wide range of options, such as the use of multimedia in the classroom, to achieve the desired results in terms of student teaching (Sarabadani, Jafarzadeh, & ShamiZanjani, 2017). Engaging with one's peers in an online learning environment has been shown to improve learning outcomes (Goh, Leong, Kasmin, Hii, & Tan, 2017). The academic content of e-learning is crafted with care, and students are briefed on what they can expect from their virtual classroom experience (Gopal, Singh, & Aggarwal, 2021).

Furthermore, a cutting-edge e-learning system in higher education requires robust

support from the administration (Meyer & Barefield, 2010). Higher education administrators are responsible for setting institutional policy, fostering an inspiring academic environment, and supporting the academic effectiveness of students. They play a significant role in shaping how institutions evolve over time (Young & Norgard, 2006). Given the inevitability of online course technology adoption, schools and universities must foster an atmosphere conducive to working together (Bolden, Jones, Davis, & Gentle, 2015). Also, administrators can take an active role in the online program's planning and management, which improves the standard of e-learning (Strike, 2018).

It's difficult to predict the exact form that homework, exams, and the assignments for online program. This trait, as stated by Güzer and Caner (2014) and Sulistyaningsih (2022), is beneficial to students' capacity for analysis, critical thinking, and problem solving. The creation of appropriate course materials is a crucial component of making effective e-learning (Little & Knihova, 2014). Efficient online learning curriculum should stress the importance of student involvement in the learning process (Ashwin & McVitty, 2015). In higher education, a learner- centered approach, rather than a teacher-centered one, is used to design online courses (Vadakalur, Kalaichelvi, John, & Menon, 2020).

Lwoga (2014) state that in their evaluation of course design, students consider how well the e-learning system's content meets their needs. This is widely recognized as an important consideration when thinking about how students perceive online learning. Content organization, multiple ways for students to connect with one another, and effective use of technology were all factors that Jaggars and Xu (2016) claimed were essential to good course design. Miyazoe and Anderson (2010) found that when comparing the satisfaction levels of different types of course design and interaction, online students ranked information as higher on their list of priorities. Those who took part in traditional classroom settings, on the other hand, ranked a strong rapport between themselves and their teachers as their most important learning resource. especially through online classes and instructional approaches, Rubin and Fernandes (2013) acknowledged that a course's structure and design can affect how well students learn. As well, Eom and Ashill (2016) stressed the significance of course layout and structure with connection of learners' perceptions by their learning results and their feelings of learner satisfaction, specifically at that time when the course's material is divided into manageable chunks that are interesting and motivate students to continue learning.

Incorporating multimedia into the course layout has been shown to increase students' engagement with the material and improve their grasp of its abstract concepts (Khamparia & Pandey, 2018). With respect to time, location, and learning on one's own (N. Ahmad, Quadri,

Qureshi, & Alam, 2018). Traditional learning course designs can only incorporate a small amount of multimedia content due to time constraints. And when online courses are designed well, students work together and have fun in the process (Liao, Chen, & Shih, 2019). Students' prior knowledge and comfort levels will inform how the course is structured (Ricart et al., 2020). The effectiveness of students taking courses online depends on the quality of the course design and the amount of visual information provided (Oh, Chang, & Park, 2020).

As an alternative to the traditional lecture format, Harasim (2000) highlighted how crucial it is for teachers to develop a paradigm regarding online teaching and learning and to actually engage in e-moderating. Three important roles were summed up by Evans and Haughey (2014): contextualizing, monitoring, and metacommunication. In contrast to the first two components, which are intended to make up for absence of physical cues in traditional classroom settings, the meta functions remain designed to deal with communication problems that are typically handled in classrooms with body language and to summarize the condition of a conversation to give the sense of accomplishment and direction. In addition, Liaw, Huang, and Chen (2007) discovered that educators held very positive views of e-learning environments as a valuable teaching-related tool, and that instructors' intention to use e-learning was influenced by educators' perceptions of the tool's usefulness and their own sense of competence in using it. Having an active and involved teacher is highly valued by students. What

Selim (2007) calls "the interactive style, attitude, and behavior of technology instructors" is very essential for e-learning effectiveness. Selim (2007) revealed that teachers' attitudes regarding interactive learning were the most crucial component inside online course's effectiveness. This was followed by the instructors' control of the technology, the instructors' teaching style, the students' computer competency, interactive collaboration, the course's contents, design, access, infrastructure, and support, and finally, the Also, giving professors the freedom to develop their own online courses and incorporate their own unique pedagogical approaches is crucial to the effectiveness of e-learning in higher education (Kebritchi, Lipschuetz, & Santiague, 2017). Bliuc, Ellis, Goodyear, and Piggott (2011) argue that teachers should give students useful comments on how they spent their class time. The quality of e-learning can be increased and student

satisfaction with the course can be influenced significantly by evaluating teacher performance to determine competence (Alrefaie, Hassanien, & Al-Hayani, 2020). As a result, the following theory is put forth:

To see if there was a correlation between demographics and how people felt about the

quality of their online courses, read Swan et al. Students who are female or older may find more effectiveness with online education than their male or younger counterparts. Meanwhile, there were those who argued against it (Greasley, 2011). According to some, there was no correlation between age and gender in terms of happiness (Hong, 2002). Other studies' results suggest that female learners in web - based learning are more sensitive when interacting with instructors; they are more positive and satisfied with an online course, but wish for higher interaction (Young & Norgard, 2006). Age, motivation, and domain expertise were found to positively affect how customers evaluated the quality of e-services by Pham, Limbu, Bui, Nguyen, and Pham (2019). Perceived e-service quality was found to be inversely related to previous university experience, online education experience, and fee cost. Willging and Johnson (2009) wanted to know why students quit their online classes. It was determined that factors such as students' gender, race, residency, and employment histories were the most significant predictors of online student retention. It is also crucial that the university has the resources and the human resources trained to deal with such a technological and human population growth. On the other hand, Almaiah and Alismaiel (2019) stated that learners' active engagement and willingness to utilize this strategy are essential for the success of online education.

Conversations between teacher and student take place at the level of academic knowledge in the course of the learning process. Nineteen student-focused criteria for evaluating the quality of an e-learning website were analyzed by Fabianic (2002). These factors included the site's visual appeal, ease of use, navigation, security, popularity, load time, customer service, accessibility, content quality, content freshness, content currency, leadership, security, assistance, customization, tailored communications, and dependability. The seven criteria defined through were accurate and intelligible material, full information, personalization, reliability, transportation, interaction, and user interface Büyüközkan, Ruan, and Feyzioğlu (2007). In the event that students encounter a poorly designed website while taking an online course, It may have a detrimental effect for their learning capacity Reisetter, LaPointe, and Korcuska (2007) and Sulistyaningsih (2022) discovered that online course participants gave credit to web site's design including to their capacity to communicate with and obtain the teacher's feedback. According to other studies, the effectiveness of online education depends on the integration of a variety of technologies into a variety of settings. Due to advancements in internet and mobile technology, the educational system has shifted from a more traditional framework to a more modern method of teaching. Students' opinions of their teachers are shaped by how well they themselves keep up with changes in technology

and course material. Options for education have shifted dramatically as a result of technological development. The use of technology in the classroom has many advantages, not only for students but also for teachers. With the help of today's technological advancements, teachers can reach their students from anywhere in the world, each moment (Elumalai et al., 2021).

Students' perceptions of themselves, besides how they see technology, how they approach jobs, and how tech-savvy they are crucial to understanding the abilities and attitudes necessary for effectiveness in e-learning (Borokhovski, Tamim, Bernard, Abrami, & Sokolovskaya, 2012). Hammond (2000) and Sulistyaningsih (2022) discovered that both affective and cognitive learning factors—such as past exposure towards mediated learning as well as computer skills—determine how effective learning works, while Sigala (2004) highlighted the importance of considering children's capacity for educational achievement in broadly "(like. self- efficacy, expectations, perceptions of teachers, feelings of anxiety and achievement)". One's own sense of how much one has learned after engaging in online instruction. In order to enhance the learning experience, instructors continuously review students' impressions of effectiveness of materials supply, planning and construction, assessment, and ideas acquired. One of the most important criteria for evaluating a course is the degree to which students' perceptions of the course change as a result of their participation in it (Khairy & Abdelaal, 2023). The learner's prior experience using technology will determine how effectiveness e-learning will be for them, home country and native language, educational background, self-discipline, self-perception, and self-regulatory processes (Alam, 2022; Sigala, 2012). It is likely that student satisfaction and learning outcomes are related to how well students think the course works for them (Eom & Ashill, 2016). As a corollary, students' opinions are tied to how they feel their instructors are approaching their lessons online (T. Nguyen & Huynh, 2020). As per the above discussion following hypothesis is therefore proposed. Group cohesiveness and productivity, resource utilization, and communication are all potential indicators of the effectiveness of online learning, as proposed by Borokhovski et al. (2012). In addition, other variables related to learners must be considered while e-learning because it calls for learners to be active participants in their learning. However, in the past, research on the efficiency/quality of learning frequently utilized marks, attitudes evaluations, and observed data for students (Mastan, Sensuse, Suryono, & Kautsarina, 2022; Sigala, 2004).

Whatever is delivered during online courses seems to be a combination of instructor-delivered information, internet-driven data, including specified learning and evaluation tasks

(Mastan et al., 2022; Peltier, Schibrowsky, & Drago, 2007). The content quality of an information system was defined as its timeliness, breadth, relevance, simplicity, appropriate format, The reliability of information production, as well as its clarity, thoroughness, and correctness (Wu & Zhang, 2014). Furthermore, Information quality possesses the greatest influence on consumers' happiness out of the three categories, like quality of information, system quality, as well as service quality (Amin, Yousaf, Walia, & Bashir, 2022; Nair & George, 2016). Information quality, as defined by Klobas and McGill (2010), is the "suitability of the information" for the user's purpose; e-learning systems and services were evaluated on their accuracy, timeliness, reliability, relevance, clarity, comprehensiveness, and format. Learning effectiveness was the main topic of study for (Kew, Petsangsri, Ratanaolarn, & Tasir, 2018). The findings showed that the most effective form of online learning was interactive. Furthermore, it has the potential to supplant more conventional methods of education. Effectiveness was a topic of research for Panyajamorn, Suanmali, Kohda, Chongphaisal, and Supnithi (2018). Most significant characteristics were discovered toward being inner aspects (student perspective, motivation, and contentment), as well as outer aspects (school atmosphere, teachers, technology, course flexibility, or enterprise and models). Additionally, de-Marcos, García-López, and García-Cabot (2017) and Alam (2022) investigated the efficiency and applicability of e-learning models. That e-learning is the most efficient method of instruction was proclaimed by them.

Methods

After seeking previous literature, it has been inferred that previous studies have major focused on developed economies (Zhang et al., 2006) while have little attention on developing economies especially on Indonesia. Moreover, previous literature also have major attention on other variables technical supports, course design, administration support, learners characters, and instructor character (Khairy & Abdelaal, 2023) while have little attention on six indicator management support . Also, in previous literature, the core respondents were hospitality departments while have little attention on other management studies department studies. Therefore, based on previous gaps, research has formulated on the context of Indonesia educational institutions especially in the context of management studies students. All variables are predicted in following Figure.1 below.
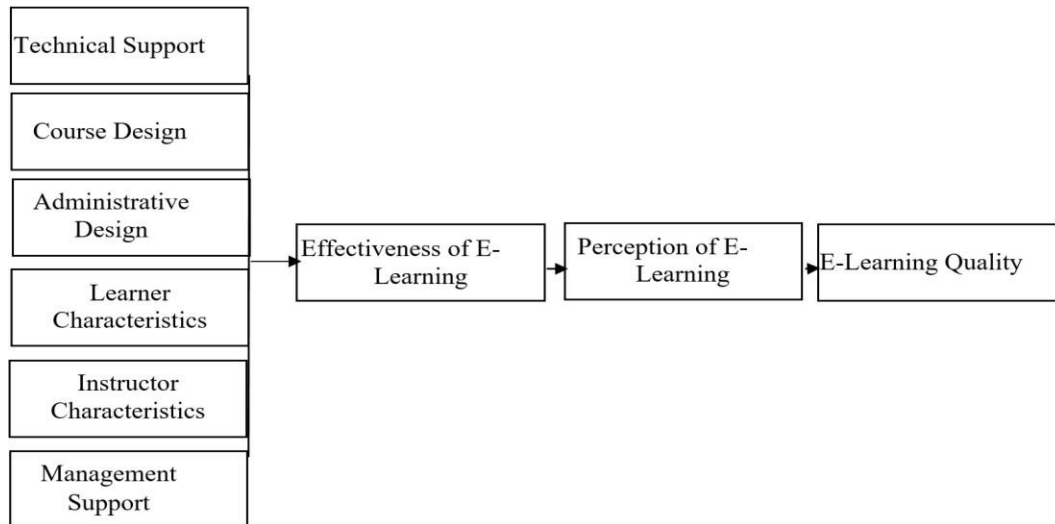
Figure.1: Conceptual Framework Based on previous literature, the research hypothesis of the study are formulated below.

H1: E-learning effectiveness significantly affected by administrative support.

H2: E-learning effectiveness significantly affected by course design.

H3: E-learning effectiveness significantly affected by instructor character.

H4: E-learning effectiveness significantly affected by technical support.

H5: E-learning effectiveness significantly affected by learner character

H6: E-learning effectiveness significantly affected by management support.

H7: Perception of e-learning significantly affected by e-learning effectiveness.

H8: E-learning quality significantly affected by perception of e-learning

The quantitative research approach was used in the current research to check the impact of course design, managerial supports, technical support, administrative support, learner characteristics on e-learning effectiveness among management studies students in Indonesia. The data was collected from the management studies students of public sector universities in Indonesia. Data

collected through self-administered survey instrument which was distributed among 500 management studies students using convenient sampling technique.
350 research instruments were returned back that is considered to be good response rate. As, the research instrument was distributed among respondents one time, therefore it is considered to be cross sectional research design. Instrument was adopted from previous

literature where it was already tested which shows more reliability of the study. E-learning was assessed using 14 items which were comprised of from the study of Khan, Nabi, Khojah, and Tahir (2020) was employed. Moreover, E learning effectiveness was measured using 21 items which were comprised of from the study of Olszewska (2020). Asses the quality was measured by 6 items which were comprised of from the research of Elumalai et al. (2021). In addition, course design, managerial supports, technical support, administrative support, learner characteristics, instructor characteristics were measured by 18 items and each dimensions were measured by 3 things that were taken from research on Khan et al. (2020) and Makokha and Mutisya (2016) as well as Queiros and de Villiers (2016). These items were measured on five point Likert which was ranged 1 for strongly disagree and 5 for strongly agree.

Results and Discussion

The "partial Least Square (PLS)-Structural Equation Modeling (SEM)" remain utilized for evaluate the current study's proposed model. Utilizing "composite reliability (CR)" as well as "Cronbach's alpha", the internal consistency reliability with this research also evaluated. Findings are in Table (2) demonstrate that variables have acceptable CR values above 0.7. Each construct also underwent tests for "discriminant validity and convergent validity (AVE)". Results above 0.50 indicate averageness and the absence of problems with discriminant validity. Consequently, to test the theories, structural model evaluations were employed. These outcomes are predicted in the following Table.1 below.

Table.1: Assessment of Measurement Model

	Items	Loading	Cronbach Alpha	Composite Reliability	(AVE)
Management support	Mas1	0.783	0.882	0.894	0.782
	Mas2	0.782			
	Mas3	0.871			
Administrative Support	Ads1	0.882	0.876	0.924	0.802
	Ads2	0.915			
	Ads3	0.89			
Course Design	Cod1	0.905	0.891	0.932	0.822
	Cod2	0.926			
	Cod 3	0.888			
Instructor Characteristics	Inc1	0.894	0.892	0.933	0.823
	Inc2	0.897			
	Inc3	0.93			
Learner Characteristics	Lec1	0.913	0.906	0.941	0.842
	Lec2	0.922			
	Lec 3	0.918			
Technical Support	Tes1	0.917	0.902	0.939	0.836
	Tes2	0.896			
	Tes3	0.93			

Quality of e-learning	Qel1	0.854	0.935	0.948	0.753
	Qel2	0.887			
	Qel3	0.87			
	Qel4	0.872			
	Qel5	0.852			
	Qel6	0.872			
Perception of e-learning	Pel1	0.796	0.967	0.97	0.7
	Pel10	0.869			
	Pel11	0.834			
	Pel12	0.881			
	Pel13	0.877			
	Pel14	0.876			
	Pel2	0.762			
	Pel3	0.806			
	Pel4	0.784			
	Pel5	0.834			
	Pel6	0.84			
	Pel7	0.845			
	Pel8	0.857			
	Pel9	0.839			
Effectiveness of e-learning	Efel1	0.771	0.912	0.921	0.607
	Efel2	0.816			
	Efel3	0.817			
	Efel4	0.819			
	Efel5	0.856			
	Efel6	0.754			
	Efel7	0.774			
	Efel8	0.761			
	Efel9	0.83			
	Efel10	0.795			
	Efel11	0.822			
	Efel12	0.828			
	Efel13	0.656			
	Efel14	0.715			
	Efel15	0.77			
	Efel16	0.816			
	Efel17	0.801			
	Efel18	0.73			
	Efel19	0.64			
	Efel20	0.765			
	Efel21	0.787			

The Table.2 predicted values indicates that the square roots of the average variance extracted (AVEs) represented by the elements in the matrix diagonals (values in bold), which should always be greater than the off-diagonal elements (these values are the correlation between the respective constructs) in their corresponding row and column (R. Ahmad, Ahmad, Farhan, & Arshad, 2020; Hair, Hollingsworth, Randolph, & Chong, 2017). All of the diagonal values are greater than from other below values which shows that construct has the discriminant validity.

Table 2: Discriminant Validity

	MAS	ADS	COD	INC	LEC	TES	QEL	FEEL	PEL
MAS	0.825								
ADS	0.192	0.912							
COD	0.323	0.776	0.899						
INC	0.351	0.252	0.316	0.787					
LEC	0.343	0.319	0.492	0.274	0.818				
TES	0.614	0.472	0.481	0.385	0.199	0.890			
QEL	0.361	0.515	0.416	0.191	0.224	0.249	0.830		
EFEL	0.078	0.211	0.369	0.372	0.254	0.366	0.349	0.935	
PEL	0.334	0.672	0.234	0.345	0.445	0.534	0.290	0.413	0.893

Assessment of Structural Model

After the assessment of measurement model, the structural model of the study was tested using the bootstrap 500 resampling technique. The PLS-SEM results indicates that administrative support (ADS) significantly effect to the effectiveness of e learnings (EFEL), management support (MAS) also significantly effect to the FEEL, course design (COD) also significantly effect to FEEL, instructor character (INC) also has significant effect on EFEL, learner character (LEC) also significant effect on FEEL, technical support (TES) also significantly effect to EFEL. On the other hand, EFEL also significantly affect to the perception of e learning (PEL) and also PEL also significantly effect to the perception of quality of e learnings (PEL). These results are predicted in the following Table.3 below.

Table.3: Hypothesis results

	Beta	STD	T Value	P Values	
ADS> EFEL	0.109	0.052	2.087	0.037	Accepted
MAS->EFEL	0.321	0.234	2.123	0.021	Accepted
COD -> EFEL	0.153	0.044	3.504	0	Accepted

INC ->EFEL	0.24	0.072	3.341	0.001	Accepted
LEC -> FEEL	0.145	0.053	2.739	0.006	Accepted
TES -> EFEL	0.219	0.072	3.04	0.002	Accepted
EFEL-> PEL	0.816	0.028	29.151	0	Accepted
PEL>QEL	0.749	0.036	20.801	0	Accepted

Discussion

In this increasingly technological era, people believe that education is more important than ever. Therefore, students' perspectives on the FEEL and its quality were also considered in the study. These connections were empirically explored by developing and testing a conceptual model. The study's findings indicate that administrative support and FEEL are positively correlated. Consistent with the findings of Dzvimbo, Mashizha, Zhanda, and Mawonde (2022) and Cheng, Chu, and Ma (2019), who advocated for the importance of administrative support in e- learning, this finding confirms those recommendations. Appropriate technological usage inside an online context requires administrative support throughout all organizational levels. Powerful administrative support is also necessary for an online education program to succeed. A well-supported online education program requires administrative support in the form of funding, direction, guidance, and oversight, as well as assistance in removing obstacles.

This study's findings also indicated a connection between course design and EFEL that was favorable. These findings are consistent with those of Carraher- Wolverton and Zhu (2021) and Alrefaie et al. (2020), who found that the teachers performance seems to be very essential for the effectiveness of e-learning. Instructor factors that can affect student learning include the instructor's perspective on technology, comfort with technology, and teaching approach (Salmon, 2002). Instructors' abilities to facilitate and mediate discussions are particularly crucial, as failure to do so can lead to serious problems.

The results of the study also showed a positive correlation between learner characteristics and EFEL. Pham et al. (2019) and Almaiah, Al-Khasawneh, and Althunibat (2020) findings are consistent with these findings. Learner characteristics, such as gender, have a substantial impact on students' academic performance (Kintu, Zhu, & Kagambe, 2017). E-

learning is more likely to succeed when students have positive attitudes toward the medium, which shape their behavior intentions and, ultimately, their commitment to the learning process. In addition, since computers play such a central role in E-learning, the varying levels of computer literacy amongst students is a crucial consideration in E-learning settings, making this aspect of online classrooms particularly relevant (Abubakar & Adetimirinz, 2015). Furthermore, the study's findings indicated that there was no meaningful association among teacher characteristics and EFEL. This finding ran counter to the findings of Liaw et al. (2007) and Selim (2007), who made the case that EFEL depends on instructors' engaging style, approach, and conduct regarding technology. According to Landrum, Bannister, Garza, and Rhame (2021), students still feel they don't get enough time to talk to their teachers during E-learning, so this finding could be interpreted as evidence that instructors' personalities are hidden behind the virtual classroom's walls.

Additionally, latest findings showed a relationship among technical assistance and EFEL that was favorable. The findings here are consistent with those of studies by Song (2010), Coman, Țîru, Meseșan-Schmitz, Stanciu, and Bularca (2020). Song (2010) argues that the quality of the hardware and software in a school's learning environment is directly related to the level of technological support it can provide for online education. The efficiency of online courses depends largely on how well they are designed. Given that today's learners across all pedagogical settings rely on online resources, this makes intuitive sense. The likelihood that a user will adopt an e-learning platform is also affected by their opinion of the platform's tools and how easy they are to use (Sarikhani, Salari, & Mansouri, 2016). When asked about their thoughts on using the E-learning platform, most students said they saw it as a useful tool for e-learning and teaching. When students encountered technical difficulties connecting to the platform, it wasn't necessarily the fault of the platform itself but rather the university servers which housed it (Coman et al., 2020). Long-distance video services that allow multiple users to communicate with one another without too many technical difficulties are also popular among students.

The research also found that the more positive students' impressions of E- learning were the more effective it was. These findings are consistent with those of Almahasees, Mohsen, and Amin (2021) and C. T. Nguyen et al. (2020). In times of emergency, e-learning can be a useful and adaptable learning tool. Students viewed e-learning as a peaceful and effective way to gain knowledge. E-learning, in the eyes of the students, is a method by which they can gain access to course materials at their own convenience, whenever they please, thanks to the accessibility of the internet (Almahasees et al., 2021). When a student uses e-learning, he or she is able to take an active role in the learning process, which may inspire independent study.

At last, the study found that there is a positive correlation between how students feel about E-learning and how good it actually with E-learning. Such outcomes agrees with that of (Almahasees et al., 2021). The extent to which the cost of E-learning reflects the quality of

that E-learning is what we mean by its value. Since students participating in e-learning are not required to leave their homes, fewer money is spent on transportation and other related expenses. Students can gain valuable life skills through E-learning, including time management and self-discipline, which can only improve the overall quality of their education.

Conclusion

The paper makes several theoretical advances. To begin, this research was conducted in response to calls for additional study of how to best utilize e-learning in the hospitality industry. The theoretical model presented in the current research contributes to the growing body of e-learning and hospitality education literature. "Second, this article can help readers understand the limitations of e-learning in the hospitality industry. Second, the study presents a comprehensive structural model of e-learning in the context of hospitality education in one Middle Eastern country, Egypt, including factors affecting e-learning, e-effectiveness, learning's students' perception, and e-quality. learning's Lastly, this research presents a theoretical framework based on Egyptian higher education hospitality students, who have a unique culture as a Middle Eastern country, which may aid in the development of Egyptian and Middle Eastern-specific strategies for designing and delivering high-quality hospitality educational services." More than that, there are real-world applications of the research. First, E-learning investments are always needed in higher education because of the importance of understanding the various factors that may affect the quality of e-learning in order to provide educational services in a differentiated fashion. Since the hospitality industry is so dependent on its employees, universities and colleges owe it to the industry to educate future hospitality professionals and understand their strategic roles in its effectiveness

Future research is required to address certain possible shortcomings of the present work. Current research ignored course content, social support, and motivational factors like. The impact that these and other variables may have on the efficacy of e-learning in higher education in the management studies will be fascinating to investigate. A second limitation of this work is that this was carried out as part of Indonesia higher education. Therefore, additional comparative research is required. Third, in order to fully comprehend the dynamics of the ever-evolving effectiveness, insight, as well as quality of E-learning, longitudinal research is required because of social desirability bias. Furthermore, the study remained restricted to a cross-sectional research methodology with a single data collection, thus future studies should use a longitudinal research strategy to improve the generalizability of their findings.

References

Abubakar, D., & Adetimirinz, A. (2015). Influence of computer literacy on postgraduates use of e-resources in Nigerian university libraries.

Ahmad, N., Quadri, N. N., Qureshi, M. R. N., & Alam, M. M. (2018). Relationship modeling of critical success factors for enhancing sustainability and performance in e-learning. *Sustainability, 10*(12), 4776.

Ahmad, R., Ahmad, M. J., Farhan, M., & Arshad, M. A. (2020). THE RELATIONSHIP WITHIN GREEN MARKETING STRATEGIES AND MARKET PERFORMANCE OF PAKISTAN SMES. *Hamdard Islamicus, 43*(2..), 204-216.

Alam, A. (2022). Cloud-Based E-learning: Scaffolding the Environment for Adaptive E-learning Ecosystem Based on Cloud Computing Infrastructure *Computer Communication, Networking and IoT: Proceedings of 5th ICICC 2021, Volume 2* (pp. 1-9): Springer.

Almahasees, Z., Mohsen, K., & Amin, M. O. (2021). *Faculty's and students' perceptions of online learning during COVID-19.* Paper presented at the Frontiers in Education.

Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID- 19 pandemic. *Education and Information Technologies, 25*(6), 5261-5280.

Almaiah, M. A., & Alismaiel, O. A. (2019). Examination of factors influencing the use of mobile learning system: An empirical study. *Education and Information Technologies, 24*(1), 885-909.

Alrefaie, Z., Hassanien, M., & Al-Hayani, A. (2020). Monitoring online learning during COVID-19 pandemic; Suggested online learning portfolio (COVID-19 OLP). *MedEdPublish, 9*(110), 110.

Amin, I., Yousaf, A., Walia, S., & Bashir, M. (2022). What shapes E-Learning effectiveness among tourism education students? An empirical assessment during COVID19. *Journal of Hospitality, Leisure, Sport & Tourism Education, 30*, 100337.

Aparicio, M., Bacao, F., & Oliveira, T. (2016). An e-learning theoretical framework. *An e-learning theoretical framework*(1), 292-307.

Asdaque, M. M., Rizvi, A. A., Jumani, N. B., & Ahmed, M. (2018). Content analysis of distance education in Pakistan: A trends study of AllamaIqbal Open University Islamabad. *International Journal of Distance Education and E-Learning, 3*(2).

Ashwin, P., & McVitty, D. (2015). The meanings of student engagement: Implications for policies and practices *The European higher education area* (pp. 343-359): Springer, Cham.

Aung, T. N., & Khaing, S. S. (2016). *Challenges of implementing e-learning in developing countries: A review.* Paper presented at the Genetic and Evolutionary Computing: Proceedings of the Ninth International Conference on Genetic and Evolutionary Computing, August 26-28, 2015, Yangon, Myanmar-Volume II 9.

Bliuc, A.-M., Ellis, R. A., Goodyear, P., & Piggott, L. (2011). A blended learning approach to teaching foreign policy: Student experiences of learning through face-to-face and online discussion and their relationship to academic performance. *Computers & Education, 56*(3), 856-864.

Bolar, K., Mallya, J., Roy, P., Payini, V., & Thirugnanasambantham, K. (2022). Determinants of hospitality students' perceived learning during COVID 19 pandemic: Role of interactions and self-efficacy. *Journal of hospitality, leisure, sport & tourism education, 30*, 100335.

Bolden, R., Jones, S., Davis, H., & Gentle, P. (2015). *Developing and sustaining shared leadership in higher education*: Leadership Foundation for Higher Education.

Borokhovski, E., Tamim, R., Bernard, R. M., Abrami, P. C., & Sokolovskaya, A. (2012). Are contextual and designed student–student interaction treatments equally effective in distance education? *Distance education, 33*(3), 311-329.

Büyüközkan, G., Ruan, D., & Feyzioğlu, O. (2007). Evaluating e-learning web site quality in a fuzzy environment. *International Journal of Intelligent Systems, 22*(5), 567-586.

Carraher-Wolverton, C., & Zhu, Z. (2021). Faculty Engagement in Online Education: Applying the Perceived Characteristics of Innovation to Explain Online Teaching Intention. *Electronic Journal of e-Learning, 19*(5), 388-400.

Catálan, L. L., Catálan, B. L., & Vázquez, Á. M. D. (2019). Web promotion, innovation and postgraduate e-learning programs. *IJERI: International Journal of Educational Research and Innovation*(11), 47-59.

Cheng, E. W., Chu, S. K., & Ma, C. S. (2019). Students' intentions to use PBWorks: A factor-based PLS-SEM approach. *Information and Learning Sciences, 120*(7/8), 489-504.

Chivu, R.-G., Turlacu, L.-M., Stoica, I., & Radu, A. (2018). *Identifying the effectiveness of e-learning platforms among students using Eye-Tracking technology.* Paper presented at the Fourth International Conference on Higher Education Advances.

Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. *Sustainability, 12*(24), 10367.

de-Marcos, L., García-López, E., & García-Cabot, A. (2017). Dataset on the learning performance of ECDL digital skills of undergraduate students for comparing educational gaming, gamification and social networking. *Data in brief, 11*, 155-158.

Dzvimbo, M. A., Mashizha, T. M., Zhanda, K., & Mawonde, A. (2022). Promoting sustainable development goals: Role of higher education institutions in climate and disaster management in Zimbabwe. *Jàmbá: Journal of Disaster Risk Studies, 14*(1).

Ellis, R., & Goodyear, P. (2013). *Students' experiences of e-learning in higher education: the ecology of sustainable innovation*: Routledge.

Elumalai, K. V., Sankar, J. P., Kalaichelvi, R., John, J. A., Menon, N., Alqahtani, M. S. M., & Abumelha, M. A. (2021). Factors affecting the quality of e-learning during the COVID-19 pandemic from the perspective of higher education students. *COVID-19 and Education: Learning and Teaching in a Pandemic- Constrained Environment, 189*.

Eom, S. B., & Ashill, N. (2016). The determinants of students' perceived learning outcomes and satisfaction in university online education: An update. *Decision Sciences Journal of Innovative Education, 14*(2), 185-215.

Evans, T. D., & Haughey, M. (2014). Online distance education models and research implications. *Online distance education: Towards a research agenda*, 131-149.

Fabianic, D. (2002). Online instruction and site assessment. *Journal of Criminal Justice Education, 13*(1), 173-186.

Goh, C., Leong, C., Kasmin, K., Hii, P., & Tan, O. (2017). Students' experiences, learning outcomes and satisfaction in e-learning. *Journal of E-learning and Knowledge Society, 13*(2).

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, 26*(6), 6923-6947.

Greasley, A. (2011). An alternative to BlackboardTM? Student use of web-based textbook teaching and learning material.

Güzer, B., & Caner, H. (2014). The past, present and future of blended learning: an in depth analysis of literature. *Procedia-Social and Behavioral Sciences, 116*, 4596-4603.

Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial management & data systems*.

Hammond, M. (2000). Communication within on-line forums: the opportunities, the constraints and the value of a communicative approach. *Computers & Education, 35*(4), 251-262.

Harandi, S. R. (2015). Effects of e-learning on Students' Motivation. *Procedia-Social and Behavioral Sciences, 181*, 423-430.

Harasim, L. (2000). Shift happens: Online education as a new paradigm in learning. *The internet and higher education, 3*(1-2), 41-61.

Hodges, C. B., Moore, S., Lockee, B. B., Trust, T., & Bond, M. A. (2020). The difference between emergency remote teaching and online learning.

Hong, K.-S. (2002). Relationships between students' and instructional variables with satisfaction and learning from a Web-based course. *The internet and higher education, 5*(3), 267-281.

Hoq, M. Z. (2020). E-Learning during the period of pandemic (COVID-19) in the kingdom of Saudi Arabia: an empirical study. *American Journal of Educational Research, 8*(7), 457-464.

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

Kaushal, V., & Srivastava, S. (2021). Hospitality and tourism industry amid COVID- 19 pandemic: Perspectives on challenges and learnings from India. *International journal of hospitality management, 92*, 102707.

Kebritchi, M., Lipschuetz, A., & Santiague, L. (2017). Issues and challenges for teaching successful online courses in higher education: A literature review. *Journal of Educational Technology Systems, 46*(1), 4-29.

Kew, S. N., Petsangsri, S., Ratanaolarn, T., & Tasir, Z. (2018). Examining the motivation level of students in e-learning in higher education institution in Thailand: A case study. *Education and Information Technologies, 23*(6), 2947-2967.

Khairy, H. A., & Abdelaal, E. (2023). Factors influencing the e-learning effectiveness and its reflection on learning quality: The role of hospitality students' perception. *Journal of the Faculty of Tourism and Hotels-University of Sadat City, 7*(1/1).

Khamparia, A., & Pandey, B. (2018). Impact of interactive multimedia in E-learning technologies: Role of multimedia in E-learning *Digital multimedia: concepts, methodologies, tools, and applications* (pp. 1087-1110): IGI Global.

Khan, M. A., Nabi, M. K., Khojah, M., & Tahir, M. (2020). Students' perception towards e-learning during COVID-19 pandemic in India: An empirical study. *Sustainability, 13*(1), 57.

Kimathi, F. A., & Zhang, Y. (2019). Exploring the general extended technology acceptance model for e-learning approach on student's usage intention on e-learning system in University of Dar es Salaam. *Creative Education, 10*(1), 208-223.

Kintu, M. J., Zhu, C., & Kagambe, E. (2017). Blended learning effectiveness: the relationship between student characteristics, design features and outcomes. *International Journal of Educational Technology in Higher Education, 14*(1), 1-20.

Klobas, J. E., & McGill, T. J. (2010). The role of involvement in learning management system success. *Journal of Computing in Higher Education, 22*(2), 114-134.

Landrum, B., Bannister, J., Garza, G., & Rhame, S. (2021). A class of one: Students' satisfaction with online learning. *Journal of Education for Business, 96*(2), 82-88.

Liao, C.-W., Chen, C.-H., & Shih, S.-J. (2019). The interactivity of video and collaboration for learning achievement, intrinsic motivation, cognitive load, and behavior patterns in a digital game-based learning environment. *Computers & Education, 133*, 43-55.

Liaw, S.-S., Huang, H.-M., & Chen, G.-D. (2007). Surveying instructor and learner attitudes toward e-learning. *Computers & Education, 49*(4), 1066-1080.

Little, B., & Knihova, L. (2014). Modern trends in learning architecture. *Industrial and Commercial Training*.

Lwoga, E. (2014). Critical success factors for adoption of web-based learning management systems in Tanzania. *International Journal of Education and Development using ICT, 10*(1).

Makokha, G. L., & Mutisya, D. N. (2016). Status of e-learning in public universities in Kenya. *International Review of Research in Open and Distributed Learning, 17*(3), 341-359.

Martínez-Argüelles, M.-J., & Batalla-Busquets, J.-M. (2016). Perceived service quality and student loyalty in an online university. *International Review of Research in Open and Distributed Learning, 17*(4), 264-279.

Mastan, I. A., Sensuse, D. I., Suryono, R. R., & Kautsarina, K. (2022). Evaluation of distance learning system (e-learning): a systematic literature review. *Jurnal Teknoinfo, 16*(1), 132-137.

Meyer, J. D., & Barefield, A. C. (2010). Infrastructure and administrative support for online programs. *Online Journal of Distance Learning Administration, 13*(3), 1-16.

Miyazoe, T., & Anderson, T. (2010). Empirical Research on Learners' Perceptions: Interaction Equivalency Theorem in Blended Learning. *European Journal of Open, Distance and E-Learning*.

Nair, R., & George, B. P. (2016). E-learning adoption in hospitality education: An analysis with special focus on Singapore. *Journal of Tourism, Heritage & Services Marketing, 2*(1), 3-13.

Nguyen, C. T., Saputra, Y. M., Van Huynh, N., Nguyen, N.-T., Khoa, T. V., Tuan, B. M., . . . Dutkiewicz, E. (2020). A comprehensive survey of enabling and emerging technologies for social distancing—Part II: Emerging technologies and open issues. *Ieee Access, 8*, 154209-154236.

Nguyen, T., & Huynh, N. (2020). Impact of the COVID-19 pandemic outbreak on the learning process.

Nyathi, M. (2022). Virtual campuses in developing countries: an evaluation of the "right connectors" for effective e-learning in higher education institutions in Zimbabwe. *Journal of Research in Innovative Teaching & Learning*(ahead-of-print).

Oh, E. G., Chang, Y., & Park, S. W. (2020). Design review of MOOCs: Application of e-learning design principles. *Journal of Computing in Higher Education, 32*(3), 455-475.

Olszewska, K. (2020). The effectiveness of online learning in the era of the SARS- CoV-2 pandemic on the example of students of Polish universities. *World Scientific News, 148*, 108-121.

Panyajamorn, T., Suanmali, S., Kohda, Y., Chongphaisal, P., & Supnithi, T. (2018). Effectiveness of E-Learning Design in Thai Public Schools. *Malaysian Journal of Learning and Instruction, 15*(1), 1-34.

Peltier, J. W., Schibrowsky, J. A., & Drago, W. (2007). The interdependence of the factors influencing the perceived quality of the online learning experience: A causal model. *Journal of Marketing Education, 29*(2), 140-153.

Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019). Does e- learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education, 16*(1), 1-26.

Queiros, D., & de Villiers, M. (2016). Online learning in a South African higher education institution: Determining the right connections for the student. *International Review of Research in Open and Distributed Learning: IRRODL, 17*(5), 165-185.

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigital science and education, 2*(3), 923-945.

Reisetter, M., LaPointe, L., & Korcuska, J. (2007). The impact of altered realties: Implications of online delivery for learners' interactions, expectations, and learning skills. *International Journal on E-learning, 6*(1), 55-80.

Ricart, S., Villar-Navascués, R. A., Gil-Guirado, S., Hernández-Hernández, M., Rico- Amorós, A. M., & Olcina-Cantos, J. (2020). Could MOOC-takers' behavior discuss the meaning of success-dropout rate? Players, auditors, and spectators in a geographical analysis course about natural risks. *Sustainability, 12*(12), 4878.

Rubin, B., & Fernandes, R. (2013). Measuring the Community in Online Classes. *Journal of Asynchronous Learning Networks, 17*(3), 115-136.

Salmon, G. (2002). *E-tivities: the key to teaching and learning online*: Kogan Page. Sarabadani, J., Jafarzadeh, H., & ShamiZanjani, M. (2017). Towards Understanding the Determinants of Employees' E-Learning Adoption in Workplace: A Unified Theory of Acceptance and Use of Technology (UTAUT) View. *International Journal of Enterprise Information Systems (IJEIS), 13*(1), 38-49.

Sarikhani, R., Salari, M., & Mansouri, V. (2016). THE IMPACT OF E-LEARNING ON UNIVERSITY STUDENTS'ACADEMIC ACHIEVEMENT AND CREATIVITY. *Journal of Technical Education and Training, 8*(1).

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education, 49*(2), 396-413.

Sigala, M. (2004). Investigating the factors determining e-learning effectiveness in tourism and hospitality education. *Journal of Hospitality & Tourism Education, 16*(2), 11-21.

Sigala, M. (2012). Investigating the role and impact of geovisualisation and geocollaborative portals on collaborative e-learning in tourism education. *Journal of hospitality, leisure, sport & tourism education, 11*(1), 50-66.

Song, S. M. (2010). *E-learning: Investigating students' acceptance of online learning in hospitality programs*: Iowa State University.

Strike, T. (2018). Administrative planning, higher education institutions. *Encyclopedia of International Higher Education Systems and Institutions, 6*, 1-6.

Sulistyaningsih, D. (2022). Development of learning design for mathematics manipulatives learning based on E-learning and character building.

Titie, P., Suthathip, S., Youji, K., Pornpimol, C., & Thepchai, S. (2018). Effectiveness of ELearning Design and Affecting Variables in Thai Public Schools. *Malaysian Journal of Learning and Instruction, 15*(1), 1-34.

Tomas, L., Evans, N. S., Doyle, T., & Skamp, K. (2019). Are first year students ready for a flipped classroom? A case for a flipped learning continuum. *International Journal of Educational Technology in Higher Education, 16*(1), 1-22.

Vadakalur, K., Kalaichelvi, J., John, J., & Menon, N. (2020). Factors affecting the quality of E-learning during the COVID 19 Pandemic from the perspective of higher education students. *J. Inf. Technol. Res, 19*.

Willging, P. A., & Johnson, S. D. (2009). Factors that influence students' decision to dropout of online courses. *Journal of Asynchronous Learning Networks, 13*(3), 115-127.

Wu, B., & Zhang, C. (2014). Empirical study on continuance intentions towards E-Learning 2.0 systems. *Behaviour & Information Technology, 33*(10), 1027-1038.

Young, A., & Norgard, C. (2006). Assessing the quality of online courses from the students' perspective. *The internet and higher education, 9*(2), 107-115.

Zhang, D., Zhou, L., Briggs, R. O., & Nunamaker Jr, J. F. (2006). Instructional video in e-learning: Assessing the impact of interactive video on learning effectiveness. *Information & Management, 43*(1), 15-27.

.