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Impact of E-Learning Quality on Student Satisfaction During Covid-19 and Continuing Intentions to Use E-Learning Post Covid-19

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Abstract

The COVID-19 pandemic has forced all educational institutions to adopt online learning, regardless of how ready they are for transformation. This study aims to investigate student perceptions of e-learning quality, student satisfaction, and intention to continue using online education. It is also found that students in some areas are not ready to adapt from face-to-face offline education to e-learning platforms, examining how the quality of e-learning affects student satisfaction and usage intentions will provide useful findings for policy makers and educators to improve e-learning effectiveness. Utilizing quantitative methods, this study uses an online survey questionnaire to test the suggested research hypotheses and test the proposed model. To analyze and test the data, AMOS 20.0 was used using SEM (structural equation modeling). Based on the results of testing the impact of e-learning quality on student satisfaction and sustainable use intentions among higher education students, several conclusions can be drawn. Increasing student satisfaction by improving the quality of e-learning has resulted in greater efficiency and effectiveness of student online learning performance and outcomes. There is a strong significant relationship between knowledge sharing, communication facilities, motivation and use, and acceptance of e-learning between instructors.

Keywords: quality of e-learning, student satisfaction, continuous usage intention

INTRODUCTION

The pandemic has brought major changes to the entire education system, and the adjustment of the educational model of both lecturers and students to a new way of life known as the "New Normal". Universities around the world during the pandemic did not enforce face-to-face learning and began to implement online learning. Lecturers have to make considerable adjustments to their teaching styles and methods. In the field of education, this means adapting to an online teaching model that allows students to learn on their own continuously. Lecturers

DOI :
ISSN :

have used a variety of platforms for online learning including Zoom, Blackboard Collaborate, Line, or Google Meet, depending on the teaching style of each subject. Students and faculty alike must prepare in advance for online classes. Meanwhile, lecturers must provide teaching materials that are suitable for online communication.

The COVID-19 pandemic has forced all educational institutions to adopt online learning, regardless of how prepared they are for transformation. This sudden shift has started a debate about the quality of elearning, student satisfaction, and the intention of continuous use of e-learning platforms. This study aims to investigate students' perceptions of the quality of elearning, student satisfaction, and the intention of continuous use of online education. There are also students in some areas unprepared for the transition from face-to-face classrooms to e-learning platforms, examining how the quality of e-learning affects student satisfaction and intentions of use will provide useful findings for policymakers and educators to improve the effectiveness of e-learning in these challenging times.

This problem has an impact on the sustainability of the college, what kind of educational model do students prefer? Is the online education model preferred if the pandemic ends or vice versa, students prefer face-to-face? This makes competition among universities to provide the best for students. The increasing level of competition in colleges provides an opportunity for prospective students to consider several options in choosing and applying to colleges (Ali, 2019). Therefore, it is important for universities to pay more attention to the factors that cause student satisfaction in order to gain a competitive advantage in today's highly competitive market (Ali, 2019; Jameel et al., 2021). Private Universities and State Universities have designed a variety of unique student-focused approaches with the aim of generating student satisfaction in a competitive environment. According to Mageswary and Wong (2021), universities are very important to monitor student satisfaction levels because it will encourage students to perform better in studies which will contribute to student retention,

E-learning refers to learning over the Internet, providing learners with a flexible and personalized platform for learning. It can be called an innovative approach to providing excellent educational services to learners through electronic information, aimed at continuously improving knowledge, skills and other performance (Fazlollahtabar and Muhammadzadeh, 2012). Colleges use their own well-developed learning management system. Most universities in Indonesia use online platforms such as Microsoft Teams, Zoom, and Skype. The Minister of Education and Culture supports web-based education and increases the capacity of online platform services to strengthen online teaching. Such as, Learning Home Access, Google G Suite for Educators Access, Microsoft Office 365 Access, Teacher Room Online School Access, providing quota assistance for students

Although e-learning is not a new concept, its use is still limited. Langdon (2020), points out that higher education institutions around the world are transitioning to different forms of e-learning, and for most of them, it is an uncharted region. This is certainly a big and challenging step for universities, because in addition to having to maintain the quality of education, the

DOI :
ISSN :

implementation of e-learning is carried out in the middle of the second semester without any planning or readiness from students, teachers or lecturers, administrative teams or even technological infrastructure. The transition period to e-learning in college during the pandemic happened suddenly. Both lecturers and students have very limited time to prepare a new teaching and learning model. On the other hand, e-learning has guaranteed the improvement of ability, information and quality of learning through interaction (Fazlollahtabar and Muhammadzadeh, 2012). Even by Mystakidis et al. (2019) and Sumi and Kabir (2021) say that increased student participation in e-learning can lead to enrichment of students' knowledge and interest. To increase added value, universities need to have the ability to evaluate the quality of the e-learning process, so that the evaluation of service quality can be measured, and then measure the true perception of students. This is also an important area for improvement, in the more consistent use of e-learning in the future and as an educational method that supports learning even after this pandemic period is over.

The transition from offline to online learning due to the COVID-19 pandemic has become an unprecedented national challenge. While there have been efforts to provide empirical evidence for a better understanding of the quality of e-learning and the implications for improving the quality of online teaching, e-learning quality topics during the COVID-19 pandemic are still necessary for policymakers, academics, and practitioners due to the diversification of the e-learning context. Furthermore, this research will help policymakers, academics, and practitioners to fill knowledge gaps, making it possible to design effective e-learning programs.

LITERATURE REVIEW

Educational institutions in several countries are shifting their teaching mode from classroom to online teaching in order to maintain sustainable and effective education during the pandemic according to Sahu (2020). Supported opinion Zalat *et al.* (2021) that before Covid-19, e-learning was underutilized by developing countries and the pandemic me m aksa countries in the world rely on e-learning for education.

According to Samsudenand Muhammad, 2019 ; Turban *et al.* , 2015 , allow e-learning considered for use in educational institutions . In a different perspective , horizon has expanded by online learning like opinion Garrison (2011) , method study via online not only allow student study in house, but also help employees learn and develop knowledge and Skills they when work . According to Al-Busaidi (2013) the learning process can be offline, online or a combination of all of them . The e-learning system has facilitated students with platform where they can avoid face-to-face interactions (Ashrafi *et al.* , 2020) .

Mashau (2000) states that universities are responsible for creating a positive learning environment to support effective learning and according to them participants students will benefit from an atmosphere of mutual support among peers, courses updated, and such superior teaching policies. Adjustment of class

DOI :
ISSN :

forms and changes of all levels in the field of Education are required by the Ministry of Education in China according to Zhang (2020).

According to Gerhard and Mayr (2002), *e-learning* could defined as use technology for convey Theory learning to seeker information , method main is through the Internet. Paulsen (2002) defines *e-learning* as use network computer for convey content education . Psaromiligkos and Retalis (2003) describe *e-learning* as method delivery for disseminate and convey learning standards and sources information , method realized with use the Internet. Quality *e-learning* could considered as mix and problem multifaceted . Stella and Gnanam (2004) argue that quality *e-learning* must evaluated use same criteria _ with education stare face . Jung (2011) believe that for evaluation quality , aspects certain from *e-learning* like different communication , access _ open to various resources , and lessons delivered need considered . *e-learning* tend depend on level motivation and dedication high student , so _ difficult for measure and confirm quality *e-learning* .

According to Cheng (2020), online teaching methods are encouraged to be implemented by all universities such as video teaching, online courses and broadcast teaching. In order to reduce learning shocks and increase students' intention to switch to online learning, it is a key factor in implementing online teaching after the pandemic, in contrast to learning in the past where its current implementation comes from an urgent situation. Where almost all teaching plans and all programs in a short time have to be converted into online mode. Students are forced to familiarize themselves with and devote time to the impact of this pandemic using online teaching platforms. In the field of education, collaborative efforts between students and teachers are needed through online platforms in accordance with current technological developments, which sometimes require innovation compared to traditional teaching systems, especially post-covid conditions. Post-covid conditions support the opinion of Tetteh (2016), namely students or students can acquire knowledge and disseminate it digitally. Teachers as facilitators or instructors with knowledge-sharing resources are expected to be able to improve service quality. According to Jun & Cai (2001), advances in information and communication technology (ICT) have changed all industries and the higher education sector is no exception according to Chow & Shi (2014). E-learning according to Fazlollahtabar & Muhammadzadeh (2012) can be seen as an innovative approach to the delivery of educational services through electronic forms of information that enhance the knowledge, skills, and other outcomes of learners. While the opinion of Beqiri, Chase, & Bishka (2010), e-learning is the use of modern ICT and computers connected to the Internet to provide teaching and learning content. In accordance with the opinion of Tsai, Shen, & Chiang (2013) and Wu (2016), e-learning is becoming increasingly popular in the field of education, especially in higher education. E-lerning continues to provide various teaching and learning options for faculty and students according to Sarabadani, Jafarzadeh, & ShamiZanjani (2017). Bhuasiri, Xaymoungkhoun, Zo, Rho, & Ciganek (2012) argue that e-learning can bring many benefits to both universities and students. For students, e-learning provides students with a choice of additional learning styles in addition to traditional learning according to

DOI :
ISSN :

Hollenbeck, Zinkhan, & French (2006). Likewise, Bhuasiri (2012) said that E-learning is not limited by space and time because it can take place at home, at work, or anywhere through computers or mobile devices connected to the Internet and university e-learning systems. This is very convenient for students who study and work at the same time. According to Bhuasri (2012) with e-learning, students can fully control the pace and rhythm of their studies because they are not required to attend physical classes on campus. In e-learning, learners have flexibility and convenience in the context of time and space location, therefore learning on line can Becomes methods for learning, teaching or acquiring knowledge anytime, anywhere using information technology according to Turban *et Al.* (2015). Fazlollahtabar (2012) revealed that E-learning guarantees a creative cycle to improve abilities, information, and quality of learning through students' electronic interactions. According to Ito and Mystakidis (2019), increased student participation in e-learning can lead to enrichment of their knowledge and interests. Khan et al (2021) found that e-learning has gained great popularity among students because of the ability to interact with educators and each other during a pandemic. However, Khan (2021) found that distance learning initiatives face certain challenges, such as lack of adaptability to online learning platforms, disruptive internet facilities in rural areas and technical problems, and computer and smartphone management crisis. It is important that the nature of e-learning is properly evaluated to monitor the delivery of e-learning according to Gress (2010)

The benefits of e-learning for universities, **first** , e-learning helps universities integrate more far to in environment global education according to Lee (2010). **Second** , Arbaugh (2005) said that e-learning helps universities save money cost big related with investation in infrastructure teaching and learning physical . **Third** , e-learning helps universities become more digital and contribute to the formation of digital and knowledgeable society where learning and sharing knowledge could conducted with simple and fast way _ when anywhere _ _ with help technology Internet- capable according to Taylor (2007). **Fourth** , by special , cooperation and relationship international in the field of teaching could take place outside boundaries one country; for example , training programs together where are students domestic no _ required for study at a foreign university , but could accept service academic full provided by foreign universities .

Zeithaml (2010) says quality has characterized as impression general buyer about superiority and inferiority relatively from something organization and services offered _ by him . While Lee (2010) said quality perceived service _ could called as ' global assessment or related attitude _ with superiority service '. Wang and Lin (2012) revealed quality service conceptualized as provider service that delivers effective service _ to those served . Whereas according to Chang et al., 2017; Susanty et al., 2020; Tang & Chen, 2020 like studies previously about behavior switch , quality service is very factor _ important driving _ user for switch . In accordance with opinion of Jung et al., 2017; Liao et al., 2019 when the service bad , that too will push consumer for switch to the platform or more service _ good

DOI :
ISSN :

Quality service interpreted as variation Among hope service and experience felt experience _ participant educate in e-learning context according to Stodnick (2008). When online learning platforms don't could give effective and quality service _ high , students will also have intention for migrate to other platforms according to Liao et al (2019). Quality service be one _ factor important in writing article this because quality service interpreted as choice of e-learning platform or online learning when learning by physique no could Fulfill Request service learning

Reciprocal relationship _ Among quality perceived service and quality of e-learning has found part big researcher among others Wang and Sheih (2006). Ham (2003) and Petruzzellis (2006) found that relationship and influence positive quality service to satisfaction customer supported by findings another . Quality e-learning system , quality service administration and support , and materials course as well as quality instructor as dimensions important contributing _ for measure quality online e-learning services overall , which has an impact on satisfaction and loyalty according to Pham et al (2019). Gefen (2002) identified five measures quality service and reduce it Becomes three that help online quality : (a) tangible ; (b) combined dimensions reliability , power responsiveness , and assurance ; and (c) total empathy in context industry electronics .

Li et al (2008) found significant gap _ Among hope students and perceptions quality service as well as explore expectations and perceptions student about quality e-learning services . Measurement scale for determine quality service electronic there is four factor , reality , reliability , power responsive and empathetic findings from Han and Baek (2004).

On the other hand, the dimension significant for measure quality service electronics , Yang et al. (2004) explore attention , credibility , access , security , convenience usage , and reliability . Factors this shared Becomes three category main according to Lin (2007), Wang et al . (2007), and DeLone and McLean (2003) namely , quality service , quality information , and quality system . Student feel connection level tall Among content e- learning , personalized e-learning, e-learning community , and e-learning self-efficacy with e-learning satisfaction according to Al- Rahmi et al . (2021).

Trust have impact period long on relationship Among customers and providers service . Connection period long determined by the extent to which the customer always satisfied and customer no feel harmed . With so , trust is element important in guard continuity something service . Trust customer defined as customer feel convinced that provider service could trusted and reliable for Fulfill promise they by effective (Ganesan, 1994). Gefen, Karahanna , & Straub (2003) define trust in online environment as set different beliefs _ in integrity , virtue , and ability someone . Trust is willingness for Becomes susceptible to other party based on set confidence separate beliefs _ in ability , virtue , and integrity (Mayer & Davis, 1999). Generally , e-trust depends on guarantee security , reputation , web searches , compliance (e.g. , willingness for customize), presentation (e.g. , web quality), technology , and interaction such as e-forums (McKinney, Yoon, & Zahedi, 2002). Singh & Sirdeshmukh (2000) stated that interest customer is one _

DOI :
ISSN :

block building trust . Somebody will believe to something service if product service the by consistent capable Fulfill his needs .

RESEARCH FRAMEWORK

This study aims to examine the impact of elearning quality on student satisfaction and the intention of continuous use among higher education students. The study mentioned earlier by Jung (2011) showed that the quality of e-learning contains seven dimensions, namely, interaction, staff support, institutional quality assurance mechanisms, institutional credibility, learner support, information and publicity, and learning tasks. Phipps and Merisotis (2000) propose 24 general benchmarks for high-quality online education in 7 categories: institutional support, course development, teaching and learning, course structure, student support, faculty support, and evaluation and assessment.

Research framework used in this study can be showed in Figure 1.

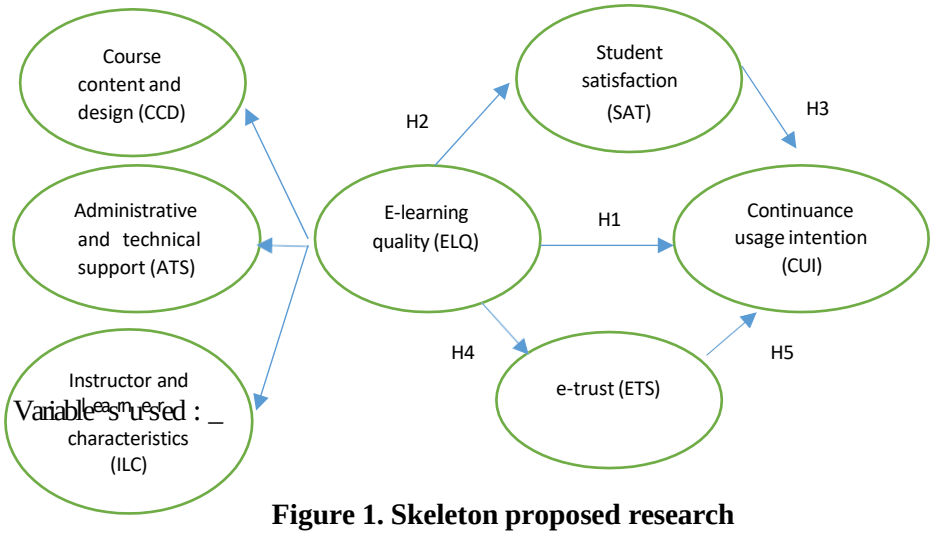

Figure 1. Skeleton proposed research

Variable's used : _

X1 = CCD
X2 = ATS
X3 = ILC
Y1 = ELQ
Y2 = SAT
Y3 = ETS
Z = CUI

Hypothesis

Based on framework proposed research , hypothesis _ is as following :

H1: The quality of e-learning (ELQ) will be impact positive and straight to the point use sustainability (CUI).

DOI :
ISSN :

H2: ELQ will impact positive , direct to satisfaction students (SAT).
H3: Satisfaction student (SAT) will impact positive and direct against CUI.
H4: The quality of e-learning (ELQ) will be impact positive and direct to ETS
H5; Trust service electronics (ETS) will impact positive and direct to CUI

METHODOLOGY

Utilizing quantitative methods, we use online survey questionnaires to test suggested research hypotheses and test proposed models. To analyze and test the data, AMOS 20.0 is used by utilizing SEM (structural equation modeling). The authors relied on previous studies related to ELQ, student satisfaction, and CUI towards IT applications in developing a measurement scale for ELQ assessment in Indonesia's e-learning environment during the COVID-19 pandemic. The validity of the initial questionnaire content is evaluated by lecturers who have experience teaching online courses through applications commonly used in Indonesia to organize e-learning courses during the COVID-19 pandemic, such as Google Meet, Zoom, and SPADA. The questionnaire consists of 25 items to measure the ELQ, student satisfaction, and CUI felt by students based on their latest e-learning experiences. To ascertain respondents' eligibility, an initial screening question was asked: "During the COVID-19 pandemic, have you ever taken and completed at least one e-learning or online course from your institution?" Those who say "yes" are entered for analysis. Surveys are created using Google Forms. The authors received a total of 204 questionnaire responses, of which 185 responses were used for analysis.

RESULTS AND DISCUSSION

Previous studies have confirmed a positive relationship between student satisfaction and online learning outcomes C. Wei et al (2020) Improving student satisfaction by improving the quality of e-learning has resulted in greater efficiency and effectiveness of student online learning performance and outcomes . Previous studies have also tried to investigate the impact of COVID-19 in elearning on the context of higher education. Alhumaid et al. (2020) applied a technology acceptance model to investigate lecturers' perceptions of online learning as a substitute for formal education during the COVID-19 outbreak in Pakistan. They found a strong significant link between knowledge sharing, communication facilities, motivation and use, and e-learning acceptance between instructors. Tj and Tanuraharjo (2020) examined the effect of e-learning service quality on student satisfaction during the COVID-19 pandemic in Indonesia. The results confirm a strong positive relationship between the quality of e-learning services and student satisfaction. Furthermore, Saxena et al. (2020) expanded the application of the SERVQUAL scale with additional predictors of relevant online learning to examine online learner satisfaction under the moderation effect of social distancing in Indian higher education during the COVID-19 pandemic. The findings reveal that the assurance, reliability, responsiveness, and content of the website are significant aspects that explain the quality dimensions of e-learning; furthermore, the quality of e-learning has been determined to have a strong effect

DOI :
ISSN :

on learner satisfaction. Shahzad et al (2020) studied the differences between the accessibility of male and female e-learning portals among Malaysian students during the COVID-19 pandemic. The findings found that men and women had different levels of use of e-learning portals.

Previous studies have sought to classify the quality dimensions of e-learning. Phipps and Merisotis (2000) propose seven dimensions of e-learning quality: institutional support, course development, teaching and learning, course structure, student support, faculty support, and evaluation, and assessment. McNaught (2001) proposes benchmarks in seven categories to confirm the quality of e-learning in the context of higher education: clear planning; strong and reliable infrastructure; good support systems for staff and students, including training and written information; good communication channels between staff and students; regular feedback to students about their learning; clear standards for courseware development; and ongoing evaluation with strong student input.

A study by Jung (2011) examining 299 learners in Korean higher education institutions revealed that the quality of e-learning contains seven dimensions, namely, interaction, staff support, institutional quality assurance mechanisms, institutional credibility, student support, information and publicity, and learning tasks. Meanwhile, Pham (2011) robust and reliable infrastructure; a good support system for staff and students, including training and written information; good communication channels between staff and students; regular feedback to students about their learning; clear standards for courseware development and ongoing evaluation with strong student input.

According to Chow and Elliott (2001) student satisfaction can be defined as a short-term attitude resulting from the evaluation of the student's educational experience, services, and facilities. In the context of e-learning, when assessing achievements in the implementation of a system, one of the most important aspects to consider is student satisfaction. Previous studies have identified a number of factors that contribute to student satisfaction in an elearning environment. Boyd's study (2008) revealed that students expressed dissatisfaction with online interactions with instructors, resulting mainly from insufficient opportunities to communicate with instructors, common misconceptions about instructor expectations, and uncertainty about the evaluation of their tasks. In addition to their difficulty in interacting with instructors, students also often report challenges in interacting with classmates in the e-learning environment. The findings also emerged in relation to students' perceptions in terms of the benefits and shortcomings of e-learning. Students feel that they are gaining a little less knowledge in an e-learning environment. Students also feel that online lectures are more time-consuming than face-to-face classes. Harga et al (2016) argue that course design and interaction between students and instructors have a positive influence on student satisfaction. The study of Wu et al (2010) revealed that interactions between students and instructors can have a significant positive impact on the e-learning atmosphere and performance expectations, which in turn affects student satisfaction.

DOI :
ISSN :

E-learning Quality (ELQ) will have a positive and direct impact on sustainable use intentions (CUI).

L Pham et al (2019) use three dimensions of e-learning quality – system quality, teacher quality and subject matter, and quality of administration and support services – to explain student satisfaction and loyalty. Based on their literature review of the quality of elearning, in this study, the authors consider the quality of elearning to be a multidimensional construction of three components that affect student satisfaction and intention of continuous use of the e-learning platform: course content and design (CCD), administrative and technical support (ATS), and instructor and learner characteristics (ILC)

E-learning Quality (ELQ) will have a positive impact, directly on student satisfaction (SAT).

Tj and Tanuraharjo (2020) examined the effect of e-learning service quality on student satisfaction during the COVID-19 pandemic in Indonesia. The results confirm a strong positive relationship between the quality of e-learning services and student satisfaction. Furthermore, Saxena et al. (2020) expanded the application of the SERVQUAL scale with additional predictors of relevant online learning to examine online learner satisfaction under the moderation effect of social distancing in Indian higher education during the COVID-19 pandemic. The findings reveal that the assurance, reliability, responsiveness, and content of the website are significant aspects that explain the quality dimensions of e-learning; furthermore, the quality of e-learning has been determined to have a strong effect on learner satisfaction

Student satisfaction (SAT) will have a positive and direct impact on CUI

According to Chow and Elliott, student satisfaction can be defined as a short-term attitude resulting from the evaluation of the student's educational experience, services, and facilities. In the context of e-learning, when assessing achievements in the implementation of a system, one of the most important aspects to consider is student satisfaction. In urban areas with adequate infrastructure, students are satisfied and have a direct impact on the sustainability of the use of elearning.

The quality of e-learning (ELQ) will have a positive and direct impact on ETS

McKinney, Yoon, & Zahedi (2002) have revealed that e-trust depends on e-Service Quality which includes security assurance, reputation, web search, compliance (e.g., willingness to customize), presentations (e.g., web quality), technology, and interactions such as e-forums. e-Service Quality fosters trust for users regarding the ability to learn online as an effective learning method, providing benefits for students and students feel confident that they will not feel disadvantaged while participating in online learning.

The trust of electronic services (ETS) will have a positive and direct impact on CUI

DOI :
ISSN :

E-Trust (ETS) has a positive effect on the sustainability of the use of elearning (CUI). This is supported by previous research that revealed that etrust is a strong predictor (Hidayat & Anasis, 2018). When students feel confident in their online learning ability as a learning method and do not feel disadvantaged, students do not mind continuing the use of elearning.

CONCLUSION

Based on the results of testing the impact of e-learning quality on student satisfaction and the intention of continuous use among higher education students, several conclusions can be drawn. Increasing student satisfaction by improving the quality of e-learning has resulted in greater efficiency and effectiveness of student online learning performance and outcomes. There is a strong significant relationship between knowledge sharing, communication facilities, motivation and use, and e-learning acceptance between instructors. The results of the research hypothesis test are as follows:

1. E-learning Quality (ELQ) has a positive and direct impact on the intention of continuous use (CUI).
2. E-learning Quality (ELQ) has a positive impact, directly on student satisfaction (SAT).
3. Student satisfaction (SAT) has a positive and direct impact on CUI
4. The quality of e-learning (ELQ) has a positive and direct impact on ETS
5. Electronic services trust (ETS) has a positive and direct impact on CUI

FUTURE RESEARCH

Universities should pay special attention to the quality of e-learning systems. In an e-learning environment, student learning is achieved primarily through interaction between students and e-learning systems. The e-learning system is realized through the university's e-learning website. Therefore, the quality of the e-learning system can be considered as the quality of the e-learning website and is related to the hardware and software capabilities used to meet the needs of online teaching and learning. Colleges providing e-learning services must ensure that the software and hardware of the e-learning system are modern and compatible so that the e-learning system operates smoothly and reliably. Note that the items that make up the quality of the e-learning system in this study are mainly related to ease of use, security/privacy, and accuracy.

Many studies confirm the importance of the "ease of use" attribute of the e-learning system. The ease of use here means easy navigation to make it easier for students, especially for students who do not have much experience in interacting with computers and websites, to find the information they need easily. To do this, the organization and structure of the pages and the content of the information displayed must be absolutely logical and easy to understand. A well-organized navigation structure will give students a better sense of technological readiness and greater enjoyment of learning. As students have more technology readiness and become more interested in learning, their level of satisfaction with the e-learning system will be higher and it is a measure of the success of the e-learning system.

DOI :
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