Student Compliance Intention Model for Continued Usage of E-Learning in University

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Abstract. Continued usage of e-learning is important and has been a major challenge. The problem continued usage of e-learning is a lack of student participation, unwillingness to learn, lack of motivation, lack of awareness, behavioral habits and cultural resistance. There are many studies proposed models for continued usage of e-learning. However, the previous models have not conducted research from the point of view of student compliance. If there is no student intention to comply with the rules of using e-learning, then continuing use of e-learning is very unlikely. Compliance with regulation can change culture. Compliance can also be used to ensure continued use in a system, such as the continued usage of an Enterprise System and continued usage of mobile social network service. So, this study proposes student compliance intention model for continued usage of e-learning. The result of this study is the proposed model that will help developer, university, and policy maker to develop e-learning application.

Keywords: Continued usage of e-learning · Compliance intention · Student intention

1 Introduction

The Coronavirus pandemic has affected the world, pushing societies into a series of changes in many areas, such as economics, medicine and education. This pandemic has introduced new methods of education in schools, colleges and universities, particularly the use of e-learning [1], which has emerged as an innovative strategy to promote learning delivery in education [2–4]. When a university chooses to introduce e-learning, it faces many obstacles. Because of the need to master new learning habits, introducing the tools of technology into the educational can frequently fail [8].

It is thus recommended that e-learning induction should be performed prior to the enrollment of students to raise awareness among students of the value of e-learning [16]. Nevertheless, studies have found that the majority of students felt it was really important to use e-learning to support their studies, although there are some technical issues [17].

According to some researchers, an efficient approach to e-learning involves an alignment of the student and the technology of e-learning [9–11]. In e-learning, the student is a key element because he or she interacts directly with the e-learning process [12, 13]. Because such student participation is necessary to the successful implementation of e-learning [14, 15], it is clear that e-learning systems cannot achieve the goal of supporting learning without the willing participation of student.

The success of an e-learning depends on both its acceptance and its continued usage. While e-learning has been promoted to various users, its use is frequently discontinued [18]. Faced with the increasing number of different e-learning applications, ensuring students' intentions to not only accept but also use e-learning applications is currently becoming a new challenge [19–22]. Despite the widespread recognition of the value of e-learning over the past decade, many students discontinue e-learning soon after initial acceptance of its usage [20, 23]. Understanding the factors that affect students' intention to continue using the e-learning system can help system developers and vendors design the best strategies to increase its usage [24, 25]. Therefore, many studies have proposed models for continuance of use of e-learning. However, the previous models do not conduct research from the point of view of compliance. If there is no student intention to comply with the rules of using e-learning, then continuing use of e-learning is very unlikely.

Compliance means ensuring that business practices and processes are aligned at commonly accepted norms or standards [42]. Compliance requirements are commonly connected with regulations that may be introduced externally or internally for an organization itself [43]. Thus, compliance intention is defined as an individual's intention to comply with norms and refers to the individual's will to perform voluntary behavior [44]. According to Social Influence theory, a user's attitude may change through three processes: compliance, internalization, and identification [28]. This study focuses on compliance, because it requires some time and effort to ensure compliance by an individual user [45]. Compliance can be used to ensure continued use in a system, such as the continuous use of an Enterprise System [26, 27] in an organization that is often monitored through regular compliance checks, and enforcement of policies. Continuous usage behavior reflects individuals' compliance in continuing to use the systems to meet the work requirements. Another study examined the continuance of use of a mobile social network service (SNS) in China by comparing a factor of compliance and other factors [28]. The results of these previous studies indicate that these factors may also have significant effects on continuance of usage for e-learning.

This study focuses on students' intention to comply in continuing to use e-learning as required. The context of this study is Indonesian Higher Education, where quality assurance (QA) is carried out through the establishment, implementation, evaluation, control, and improvement of higher education standards. In Article 52 of RI (Republic Indonesia) Law No. 12 of 2012, QA is a systemic activity to improve the quality of higher education in a planned and continuously manner. In Article 54 RI Law No. 12 of 2012, one of the QA standards in education is SPMI (Internal Quality Assurance System). One of the SPMI component is the standard for continuance of use in e-learning. Therefore, students are required to comply with continued usage of e-learning.

2 Research Problem

The main challenge in e-learning is the effort needed for continuance of use [10, 11, 18–22, 29, 30]. When implementing any new technology, the most common barriers and challenges that universities have encountered are resistance to change, and rather strong unwillingness to learn through e-learning [32]. The other problem in e-learning is cultural resistance [33]. Lack of learner motivation has been identified as a major concern of instructors in e-learning [33], even though a well-motivated student is a important partner for effective e-learning [1]. Other studies found problems in e-learning regarding self-motivation and cultural awareness [34].

In Indonesia, a range of studies have been carried out on the implementation of e-learning in universities, from a variety of perspectives [35–40]. Tobing [36] and Syam, et al. [39] focused on the perceptions of lecturers in using e-learning, while Guspatni [35] focused on perceptions of students in university. Guspatni found that most students did only a few quizzes and spent less time on e-learning materials and he also found that some students could not manage their time effectively for online learning. Sfenrianto, et al. [40] focused on the effectiveness of e-learning and found that the culture and technological infrastructure in the learning system are major factors. Sadikin and SK [38] found that barriers to e-learning included lack of compliance with government regulations. The problems mentioned above are the reason why e-learning is not used continuously in Indonesia. However, the previous research has not conducted research from the point of view of student compliance, to discover whether non compliances with government regulation is a barrier to e-learning and whether compliance with regulation can change culture [41], where culture is a major factor for effectiveness in e-learning. Therefore, this research focuses on student compliance intention for e-learning continuance of use of e-learning.

3 Literature Review

This review was carried out by searching for research papers which included models for students' continuance of use intention, continuance of use of e-learning, and compliance intention. Table 1 outlines the results of the literature review and identifies the theories used to construct and support each model.

4 Research Methodology

In this study we conducted literature review which involved collecting related data from journal articles written in English and also published in digital databases from 2009 to 2019. The search strategy for the study included both an automated search and a manual search. Both of these approaches to search were used to explore content for the review, thus including additional studies which could provide a broader perspective. Following [106], the manual search for this study sources was performed after the automated search. The automated search was focused on research keywords, and was conducted as an electronic search, using online scientific databases including Science Direct, Scopus, Springer, and Web of Science. These keywords of interest were used to search through

Table 1. Theories used in research papers using each model

Theory	References in research of students' continuance of use intentions model	References in research of e-learning continuance of use model	References in research of compliance intention model
Agency theory			[81]
Cognitive load theory			[82]
Expectation confirmation model/theory	[46–50]	[10, 20, 23, 29, 30, 51–55, 77]	
Expectancy disconfirmation theory		[62, 64]	
Flow theory		[11, 23, 74, 75]	[76]
General deterrence Theory			[73, 81, 83–94]
IS continuance model		[7]	
IS success model		[20, 63]	
Protection motivation theory			[67, 68, 81, 87, 88, 91, 93, 95–100]
Social cognitive theory	[48, 61]	[22, 65]	
Self determination theory	[56, 57]	[15]	[58]
Social bond theory			[84, 85]
Social comparison theory			[101]
Social exchange theory			[102, 103]
Social learning theory			[104, 105]
Technology acceptance model	[48, 57, 59–61]	[7, 10, 21, 23, 25, 51, 54, 55, 62–65]	[66]
Theory planned behaviour	[50]	[23]	[44, 67–73]
Theory of reasoned action		[10, 54, 64, 77]	[78, 79]
Task-technology fit		[52, 80]	
Unified theory of acceptance and use of technology	[56]	[7]	

the selected database to align identified keywords with published research and related literature. These keywords included: "e-learning continue OR continuous OR continuance use OR usage", "student continue OR continuous OR continuance use OR usage intention", and "compliance intention".

5   Proposed Model

Based on the literature review, it was found that the most used theories which significantly influence in students' Continuance of Use Intentions models are ECM, and TAM. Similarly, these two theories are the most used and influential in e-learning continuance of use models. However, the most used and influential theories in relation to the compliance intention model are PMT, TPB, GDT. Based on these findings, this study explored the possibility of integrating a few constructs from these theories, including the Expectation Confirmation Model (ECM), Technology Acceptance Model (TAM), Theory Planned Behavior (TPB), Protection Motivation Theory (PMT), and General Deterrence Theory (GDT). It was intended that integrating these constructs would provide an extended view of the compliance intention model for research into continuance of use of e-learning.

Based on the analysis of the literature obtained in the review, it appears that the most used and significantly influential variables in prior studies of e-learning continuance of use models include perceived usefulness, perceived ease of use, and satisfaction. Perceived ease of use was found to have significant effects on students' continuance intention to use a learning management system [10] and an online learning application [21]. Perceived usefulness was found to have positive effects on students 'continuance intention in different contexts, which included using a massive open online course (MOOC) [53], and an online learning application [21]. Perceived ease of use was also found to positively affect the influence of perceived usefulness on students' continuance intention [21]. Other researchers found that students also perceived Google Classroom positively in terms of its perceived ease of use and perceived usefulness [107].

Students' satisfaction with an e-learning system can lead to their intention to continue using the system [23]. For example, satisfaction has been found to have significant effects on students' continuance intention in using a massive open online course [53], and also in cloud-based e-learning [52]. Other researchers found that perceived usefulness and perceived ease of use significantly affect the intention to use, and recommended that its relationship to self-efficacy may also be an relevant issue to look at for support e-learning [108]. Overall researchers found that perceived ease of use, perceived usefulness, and intention to use e-learning among university students have a positive impact and are substantially associated with learning performance and learning satisfaction. The issue of an individual's intention is also suggested to be taken into consideration by future study, looking at how it is influenced by student characteristics and the quality of services. Moreover, they suggested that different aspects ought to be investigated, for example, the support offered for e-learning and its relationship to self-efficacy [109]. Therefore, the variables chosen for the proposed model included perceived ease of use, perceived usefulness, and satisfaction. Table 2 shows the prior studies that provided relationships between constructs in e-learning continuance of use models.

Table 2. Previous researches that provided relationships between constructs in E-learning continuance of use models

Authors	PEU → SAT	PEU → PU	PU → PEU	PU → SAT	PEU → CUI	PU → CUI	SAT → CUI
[110]					✔		
[62]		✔				✔	✔
[23]				✔			✔
[77]		✔					
[55]		✔				✔	✔
[80]				✔		✔	✔
[13]							✔
[63]	✔	✔		✔		✔	✔
[29]							✔
[30]				✔		✔	✔
[7]	✔			✔			✔
[11]							✔
[20]						✔	✔
[51]		✔		✔	✔	✔	✔
[15]							
[10]	✔	✔		✔	✔	✔	✔
[64]	✔			✔			✔
[65]					✔	✔	
[52]				✔		✔	✔
[21]		✔			✔	✔	
[25]	✔	✔		✔			✔
[53]				✔		✔	✔
[54]	✔	✔			✔	✔	✔

Notes: CUI = continuance use intention; PEU = Perceived ease of use; PU = Perceived usability; SAT = Satisfaction

Table 3 shows the prior researches that provided relationships between constructs in compliance intention models. Based on an analysis of the literature review, it appears that the most used and significantly influential variables in prior studies of compliance intention models include self-efficacy, subjective norms, attitude, and sanction. Self-efficacy, attitude toward compliance, and subjective norms were found to positively influence compliance intentions [67]. Attitude and subjective norm had significant influence on compliance intention with zakat (charitable taxation) [78], and were also significantly influential regarding intention to comply with data protection regulations [73].

Table 3. Previous researches that provided relationships between constructs in Compliance intention models

References	AT → CI	SN → CI	SE → CI	SA → CI
[83]				✔
[76]			✔	
[67]	✔	✔	✔	
[99]			✔	
[84]		✔		
[94]			✔	
[58]			✔	
[73]	✔	✔		✔
[112]		✔	✔	
[86]				✔
[90]		✔		✔
[113]		✔		
[105]			✔	
[88]			✔	✔
[98]	✔		✔	
[79]	✔	✔		
[95]	✔			
[91]			✔	
[72]	✔			
[71]	✔	✔	✔	✔
[87]			✔	✔
[69]				✔
[78]	✔	✔		
[114]			✔	
[68]	✔			

Notes: CI = Compliance Intention; AT = Attitude; SN = Subjective Norm; SE = Self-efficacy; SA = Sanction

Building a structural model conveys each element of the construct in graphical format so that the relationships between each of them for can be explored for clearer understanding. Figure 1 depicts all the constructs, including perceived usefulness, perceived ease of use, satisfaction, self-efficacy, subjective norms, attitude, and sanction, which are then used to predict the dependent variable, compliance intention for continued usage for e-learning (Table 4).
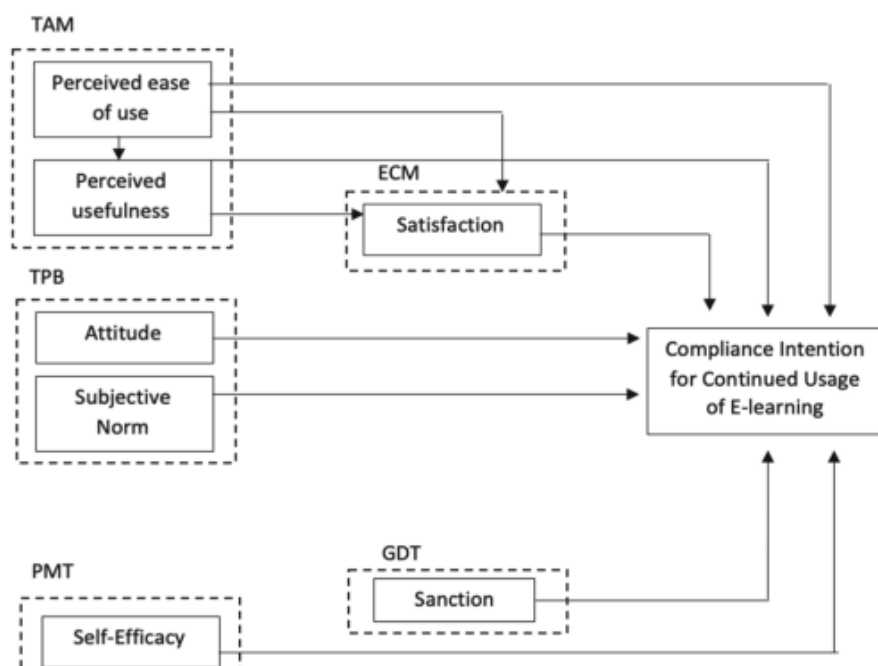
Fig. 1. The proposed model

Table 4. Construct definitions.

Constructs	Definition	Source
Perceived ease of used (PEU)	The degree to which a person believes that using appropriate system would be free of effort	[116]
Perceived usefulness (PU)	Refers to the degree to which a person believes that using appropriate system would enhance his or her job performance	[116]
Satisfaction (SAT)	This is defined as a positive emotional state which results from the utilization of system	[117]
Attitude (AT)	A psychological construct, a mental and emotional entity that inheres in, or characterizes a person	[118]
Subjective norm (SN)	An individual's perception about the appropriate behaviour, which is influenced by the judgment of significant others	[118]
Self-efficacy (SE)	This is defined as a person's beliefs in their abilities to manage series of action that required to achieve the desired type of performance	[119]
Sanction (SA)	Refers to penalties or other means of enforcement used to provide incentives for obedience with the regulations	[120]

6   Conclusion

Compliance measures can be used to ensure continuance of use of a system. If there is no intention to comply with the rules of using e-learning, then a student is very unlikely to continue using an e-learning system. Thus many studies have proposed models for e-learning continuance of use. This research aims to develop a student compliance intention model for continuance of use of e-learning in university contexts. To adequately accomplish this purpose, a comprehensive model is required to facilitate investigation of the factors that influence compliance intention for students' continuance of use of e-learning applications. Based on a comprehensive literature reviews, the factors that influence student compliance intention for continuance of use of e-learning in university courses were found to be perceived usefulness, perceived ease of use, satisfaction, self-efficacy, subjective norms, attitude, and sanction.

Thus, this paper provides a starting point for a student compliance intention model for continuance of e-learning use in university contexts. It is recommended to examine and confirm these factors in further broader quantitative research studies and by using different groups of respondents.

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Student Compliance Intention Model for Continued Usage of E-Learning in University