# Examining Student Satisfaction with Learning Management System-Based E-Learning: A Self-Determination Theory Perspective

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**Abstract**

This research aims to examine how e-learning, particularly guided by self-determination theory, impacts student satisfaction by meeting their basic needs and fostering intrinsic motivation. Specifically, we investigate various factors influencing student satisfaction, the role of e-learning, and supportive elements for e-learning satisfaction, focusing on the Indonesian context where e-learning, particularly via Learning Management Systems (LMS), is prevalent in higher education. Despite the widespread use of e-learning, there is a lack of research from the students' perspective. To address this gap, we conducted a descriptive qualitative study using the LMS SPADA platform. Through interviews and observations with 40 students, we explored their experiences with e-learning. Drawing on self-determination theory, which posits autonomy, competence, and relatedness as crucial factors in motivation and satisfaction, we assessed student satisfaction with e-learning. Our findings indicate that students generally find e-learning satisfactory, provided that certain conditions, especially those related to self-determination theory variables, are met. This research underscores the importance of adequately preparing all aspects of e-learning to enhance student satisfaction. Its implications extend to educators, students, and universities utilizing e-learning, particularly those in the Indonesian higher education sector.

**Keywords**: E-learning, Indonesia, Learning Management System (LMS), Satisfaction, Self Determination Theory (SDT)

## INTRODUCTION

As time goes by, the evolution of technology is also developing rapidly, influencing numerous aspects of life, especially education. Technological advancements have resulted in novel and creative learning models in the learning process (Effendi & Wahidy, 2019). At the moment, the world of education is entering the 21st century, and the existence of

technology is one of the main assets in learning in this century. Teachings for 21st-century students require educators to adjust teaching strategies, models, and methods to the characteristics that suit this generation. According to a study by Effendi and Wahidy (2019), the advancement of information and communication technology has had a significant impact on the world of education, particularly in the learning process. As an outcome, technology must be implemented and adapted in learning environments to deal with these adjustments.

Electronic learning, or e-learning, is one of the many alternative technologies that can be used in the teaching and learning process. E-learning is the process of acquiring knowledge through the use of a particular online resource that provides basic features for flexible interaction, scalability, and standardization (Geovanny et al., 2022). By using e-learning, learners have the right to freely access various learning resources and information that support learning (Puspitarini, 2022). E-learning has several types, but the most commonly used in education is the Learning Management System (LMS).

The term satisfaction is made up of two words, which are 'satis', referring to well enough or adequate, and 'facto', which means to make. According to Al Munawar and Fuadaturrahmah (2021), the simplest definition of satisfaction is the attempt to make something suitable or fulfil a need. The user's satisfaction is the fulfillment of the user's desires which makes the user feel pleased with a product or service (Zuriati et al., 2018). The satisfaction parameter is carried out to find the level of student satisfaction with e-learning in learning service efforts (Dikananda et al., 2019). The level of user satisfaction with the system is a reflection of its quality. Qualified learning will have a high level of satisfaction for its users (Prasetya & Harjanto, 2020). One of the indicators of the successful development and implementation of e-learning is user satisfaction from the perspective of both lecturers and students (Zaidiah et al., 2021).

Self-determination theory, or SDT, is a theory of human behaviour and personality development (Ryan & Deci, 2000, 2017). This theory contains three basic psychological needs: autonomy, competence, and relatedness. Autonomy relates to the basic human need to feel in control of their actions and decisions. Competence refers to the basic human need to feel capable and effective in performing an activity. Relatedness refers to the basic human need to feel connected, accepted, and supported by others. The use of this theory can provide valuable insight into the factors that influence learning motivation and satisfaction in the context of online learning.

The satisfaction measurement conducted in this study uses the Self Determination Theory (SDT) by (Deci & Ryan, 2008). SDT is a psychological framework that focuses on the motivation behind human behaviour. There are two types of motivation in humans: intrinsic and extrinsic motivation. Intrinsic motivation is motivation that grows from within a person without any reward or pressure. This happens because someone really wants to do the activity (Deci, 1975: P.23). According to this hypothesis when three essential psychological requirements are satisfied, individuals achieve higher psychological well-being, namely autonomy, competence, and relatedness. The success of fulfilling these three variables can affect individual satisfaction and encourage engagement in learning activities (Chiu, 2022).

Like any other learning instrument, e-learning must be assessed to see how user satisfaction, effectiveness, and efficiency impact its usage in education (Dikananda et al., 2019). Research on the e-learning services that have an impact on student satisfaction has

been conducted in many major countries, such as Vietnam and Saudi Arabia. The study findings on e-learning user satisfaction by (Pham et al., 2019) in Vietnam show that the quality of the e-learning system influences e-learning system quality factors, the quality of teachers and subject matter, along with the quality of other supporting administrative services. The quality of service is positively associated with student and educator satisfaction, which in turn affects their loyalty to using e-learning. According to research by Hoq (2020), teachers' traits have a significant positive impact on the use of e-learning in the classroom. Efforts may be made to increase satisfaction among students by identifying e-learning service quality characteristics that influence student satisfaction while using e-learning in learning.

In addition, similar research was also conducted by Tang et al. (2020), who examined basic psychological needs, namely satisfaction, by using self-determination theory. The study found that the quality of e-learning services affected student satisfaction. This was also evident in the level of student satisfaction, which reflected how devoted students were. Another study (Chiu, 2022) shows that the engagement of students with motivation is explained by three perceived psychological needs in self-determination theory (SDT). The results show that digital support or learning strategies better satisfied students.

Referring to some previous research, there needs to be more student satisfaction in using e-learning. This research is conducted by focusing on the implementation of e-learning in learning. Researchers would analyze the factors used to measure aspects of user satisfaction when using e-learning. The satisfaction aspect of this research is viewed from the student's perspective. This research aims to analyze the reality of technology-based learning at a university in Indonesia. The subject of this research focuses on students' perspectives on using e-learning technology.

This research is important to do considering the current use of e-learning in education, but it is rare to research students' perspectives while using e-learning. The objectives of this research also encompass the way in which students view the use of technology in 21st-century education. The purpose of this research is to consider aspects of the SDT perspective in evaluating the extent to which e-learning meets students' basic needs and promotes intrinsic motivation in the online learning process so as to achieve student satisfaction. Furthermore, it can help in designing and improving the e-learning experience to increase learning satisfaction and effectiveness. Moreover, this study aims to identify the factors that affect student satisfaction most when using e-learning. This research is necessary as a data evaluation of learning at the university level to find gaps in the learning process using e-learning. Thus, it can determine the policies and improvements of the learning conducted. The implication of this research is for all universities that implement e-learning, especially the universities studied.

**METHOD**

The research method used in this research is qualitative research with a descriptive approach. Qualitative descriptive research is a process of collecting data in accordance with the facts of the field that aims to interpret the phenomena or events that occur (Cahayu et al., 2023). Qualitative research emphasizes the accuracy and adequacy of the data. The emphasis in qualitative research is data validity, namely the compatibility between what is recorded as data and what actually happens in the context under study (Adlini et al., 2022).

This method is used to address research on student satisfaction when using e-learning, how the role of e-learning in learning, and supporting factors for e-learning satisfaction. Researchers used interview techniques and field observations of 40 students who have applied e-learning, in this case, the LMS SPADA, to learning for approximately four years. This research was conducted at a university in Indonesia, with the research subjects being students who actively use e-learning in their learning.

According to Creswell (2017), qualitative research departs from a general phenomenon or general to specific events. Researchers will describe the result of the interview. The interview data will be analyzed using a phenomenological approach with the aim of understanding the essence or meaning that emerges from individual experiences. Phenomenological analysis focuses on a detailed, in-depth description of the experiences expressed by interview participants.

Table 1. The Participants' Background

| No | Aspect | Item | Quantity |
|---|---|---|---|
| 1. | Gender | Female | 24 |
|  |  | Male | 16 |
| 2. | Major | English Department | 40 |
| 3. | Using E-Learning (Year) | More than 4 Year | 12 |
|  |  | Less than 4 Year | 28 |
| 4. | Integrated E-learning in English Learning | Always | 13 |
|  |  | Often | 14 |
|  |  | Sometimes | 11 |
|  |  | Rarely | 8 |
|  |  | Never | 4 |

Data analysis of interview results is carried out with an approach that focuses on what is mentioned by participants. The results of the interviews will be identified through the use of keywords based on what the researcher told the participants. The keywords will be grouped into categories that represent important aspects of the research theme based on the experiential data from the interview participants. The data will be analyzed in depth by the researcher and described with specific and accurate language.

Several questions were asked related to the role of e-learning in learning, the features that help students the most in learning, and how satisfied students are with using e-learning. The data was obtained through interviews and observation. The questions about the role of e-learning in learning asked by researchers were obtained from interviews and document analysis to reinforce the questions asked. The following question is related to the supporting factors of e-learning satisfaction, which data is obtained from interviews and observations. Additionally, the endeavour to improve and understand the effectiveness, efficiency, and user satisfaction of the system used is by conducting an evaluation.

**FINDING AND DISCUSSION**

**Finding**
**The E-learning Role in Learning**

In the process of collecting data by interview, the preliminary step taken by the researcher was asking about the students' experience of using e-learning in learning. This initial question was asked in relation to how much students could express their learning process by using e-learning. The way students talk about their experience while using e-learning will be analyzed using the SDT theory: autonomy, competence, and relatedness. The following quote is "So far, the experience of learning with e-learning is quite interesting and fun." E-learning is also an alternative application of technology in learning. The quotation is "E-learning becomes an innovative and variety of learning solutions, not only by monotonous learning or in conventional ways."

The researcher used observational data collecting to gather information by observing the university's teaching and learning activities. The findings from the researcher's investigations indicate that, so far, the learning process with e-learning is highly supportive of learning. At this university, e-learning is a crucial component of the educational process. The quotation is, "The e-learning role in learning is sufficient to facilitate the learning process anytime and anywhere; e-learning is one of the learning media that facilitates online learning and complements face-to-face learning "In fact, it is possible to maximize students' learning results if they can make optimal of using e-learning. As supported by the quote, "I make the best use of e-learning for learning, especially during exams. I can revise or review the material from e-learning."

Researchers also questioned e-learning's effectiveness in learning. As proven by the quote, "Overall, offline and online learning using e-learning remains effective because of the sophisticated features in it." It is undeniable that in the e-learning system, there are features that can support the learning process.

**The Factors that Influence Satisfaction**

The ability to access e-learning at any time and from any location is one of the most essential factors for students. It is well-recognized that students have various learning techniques and styles. As proven by the quote, "Learning with e-learning is more flexible in managing study time so that you can study anytime and anywhere." E-learning implementation grants students the full right to adjust their own study time. The quotation is, "With LMS, I can manage and control my study time and strategy without restrictions." Additionally, another student mentioned, "There are features that can house material that has been grouped by subject to be more structured, so I am not confused in looking for material." This statement is in line with the questions asked by researchers regarding what features are most helpful to students in learning. A total of 19 students argued that the subject material availability feature is the feature that helps students the most in managing learning materials. The conditions indicate the autonomy variable in SDT applied in this research.

Researchers also questioned students regarding the availability and quality of e-learning materials. One university student said, "The materials in e-learning are organized, structured, and efficient." This statement indicates that the e-learning features have been

functioning well. Nevertheless, there needs to be more implementation of e-learning systems in learning, which is the monotonous learning content. The quotation is, "The material provided in e-learning is structured but not variation." The material content presented in e-learning indirectly influences students' understanding of the learning process. Other students also have similar words. The quote is, "The material provided has minimum relevance to the material, mostly only in the form of PDF or PPT."

The researcher tried to gather more information from the students by questioning whether the e-learning system affected their learning outcomes. Some students answered that the use of e-learning can enhance their learning outcomes. As proven by the quote, "Learning with e-learning makes it easier for us to be able to choose study time independently and according to personal preference, which indirectly affects our learning outcomes." The strategies that students use in learning will be different from one student to another. Therefore, e-learning is available to facilitate students' learning based on their plans. Students' learning time is also optimized when using e-learning. This will improve student learning outcomes.

On the whole, the research process on student satisfaction with the use of e-learning has shown favorable results. Students are satisfied with how e-learning is being used in education. However, based on direct observation conducted by the researcher on November 24, 2023. The e-learning system's quality may be upgraded in a number of ways, including the user interface. The user interface of this e-learning needs to be considered sufficient. The quotation is, "The display on e-learning should be made more interesting and not boring."

**Supporting Factors for Satisfaction**

Infrastructure, the quality of the accompanying teacher, and the overall quality of e-learning all have an impact on student satisfaction. These three factors are necessary for students to be fully satisfied in using e-learning. Based on the interview results, after using the e-learning system for approximately four years, it turns out that the system used is inseparable from defects. Some features are sometimes done to run better. The quote is, "Sometimes the system has an error or the system is down." Furthermore, the role of accompanying teachers highly influences students' use of e-learning. The quote proves this, "Learning done with e-learning is only one-way, so there is a little lack of interaction between teachers (lecturers)." Proven by the statement, "The discussion forums, collaborative projects, virtual classes, and chat features make it very easy for students to interact and discuss with other students. In addition, facilities or infrastructure used to support the use of e-learning as a learning tool must be ensured to be available adequately. The quotation, "Weak internet connections and WiFi signals can occasionally pose issues for students trying to complete online courses." Another student said, "I feel challenged by the deadline given, so it forces me to do the assignment as soon as possible. There is satisfaction in itself if I can do something in a timely manner." The statement shows the competence variable in SDT applied in this study.

**Discussion**

Self-determination theory (SDT) is a theory of ownership over one's learning or, in other words, the freedom to determine their learning activities (Lanvers & Graham, 2022). Self-determination theory (SDT) is an empirically driven theory of human motivation,

development, and well-being. SDT impacts the creation of quality behaviour and performance (Deci et al., 2017). The three components of SDT are important factors that might affect an individual's intrinsic motivation and learning satisfaction. In the context of education, attention to and meeting these fundamental requirements can help improve the quality and efficacy of student's learning experiences.

Based on the results of the research conducted and associated with Self-determination theory (SDT) indicate that the autonomy variable, individual needs for a sense of control over their actions (Chiu, 2022), in the LMS type of e-learning studied has been implemented in the autonomy variable and runs very well. Autonomy research is demonstrated by the extent to which e-learning gives students control and flexibility in their learning experience. The autonomy aspect is closely related to student competence, where students can develop an understanding of success in relation to academic outcomes (Bourgeois & Boberg, 2016). E-learning offers a flexible platform that can be accessed from any location and optimizes collaboration engagement among adult learners (Listiana et al., 2023). E-learning gives students the right to organize their own study time. Moreover, e-learning also provides opportunities for students to manage and determine their learning strategies without any coercion from others. For example, how do students learn in terms of when, where, and how they learn?

The competence variable, the need to feel effective in interacting with the surroundings (Chiu, 2022) is creating a learning environment. It allows students to experience progress and achievement can fulfil the need for competence. In this research, the LMS studied is applied to the task features; quizzes, combined with deadlines, will help improve student competency. The deadline will force students to feel motivated and more diligent in learning so that their learning time becomes more effective, they will have discipline, and they will learn to manage their time well. According to Haukås et al. (2023), competence is related to student perceptions of the ability to understand and master the material conveyed. The LMS studied has fulfilled its ability to facilitate students' understanding of the material being conveyed.

Meanwhile, the Deci and Ryan (2008) relatedness variable, the need to feel connected with others, refers to how to consider the role of social interaction in e-learning (Chiu, 2022). Relatedness or interactions can build relationships between students and between students and instructors. In this research, relatedness is proved by the implementation of online discussion forums, collaborative projects, virtual classes, and chat features, which allow students to interact with each other about the same problems or obstacles in lectures. Students can communicate and discuss issues to solve them with each other. The implementation of learning using technology will contribute to and enhance the learning experience, affecting student satisfaction in using the e-learning system (Shin & Johnson, 2021).

On the other side, potential consumers' expectations regarding how hassle-free a new system should be determined how easy it is perceived to operate (Trihutama, 2020). Students do not experience any difficulties in using the e-learning system. The user interface prioritizes the quality of the display, including the selection of colors, layouts, and images, in order to produce a pleasing and attractive appearance for users. In implementing the learning process with e-learning, universities need to prepare all the infrastructure and strategies that support the implementation of e-learning. The learning process using e-

learning is closely related to access time, material, learning design, and assignments (Mahmudah et al., 2023). The results of the research showed that the university studied had prepared infrastructure that supports e-learning, such as Wi-Fi connections to access the internet and computer lab facilities.

In the implementation of content variables in the SDT, students are satisfied with the use of e-learning in learning with the various availability of features in it. Features of e-learning that are available include text, visuals, videos, discussion forums, assignments, chat, quizzes, and other formats. However, several things need to be considered in order to achieve student satisfaction, namely, improvements to the display or user interface. According to Koderi and Kesuma (2023), providing a good user interface requires collaboration between designers and users in order to produce a good display as desired. To develop quality e-learning and support learning, it is necessary to optimize more varied presentation methods (Kadek Suartama et al., 2020).

Furthermore, developing the necessary strategies for teaching and learning requires an understanding of learning styles (Siregar & Akbar, 2020). Teachers must be able to decide what strategies are suitable for the students being taught. In addition, using e-learning is considered more effective, especially since the users under study are high school students who are able to use technology-based learning. The implementation of e-learning in learning will enhance the effectiveness of learning (Kadek Suartama et al., 2020). An advantage of using e-learning that students like is the material feature, which is accessible anytime and anywhere. The e-learning platform can be accessed anytime from anywhere and is material-immersive (Koderi & Kesuma, 2023).

Student satisfaction with e-learning is closely linked to the quality of the e-learning system. As Dangaiso et al., (2022) stated, student satisfaction is largely determined by the quality of e-learning, which involves having understanding provided in an easily accessible, understandable, and up-to-date format. System quality, according to Hernita et al. (2020), is a measuring system information process that emphasizes the outcomes of user and system interactions. It can be concluded that user satisfaction is a sense of pleasure or disappointment for an individual after using the system.

The essential role of teachers in the learning process is paramount when utilizing e-learning. Teachers' and students' interactions still need to be improved. E-learning has an impact on decreasing the value and character of students. It results from a need for face-to-face communication between students and teachers or among students themselves. In other words, e-learning tends to neglect social aspects. The learning paradigm has begun to shift. The role of the teacher has shifted, no longer the sole source of learning. However, the teacher remains the guide in the learning process (Puspitarini, 2022). This is in keeping with the belief (Simbolon et al., 2023) that the instructor serves as a crucial guide for the students during this learning process. Teachers need to demonstrate to students some examples before allowing students to try it on their own. Although the students who use e-learning are upperclassmen, teachers need to monitor their students' progress.

**CONCLUSION**

According to the findings of the overall study and the analysis of variables from the SDT theory that affect e-learning users, learning improves satisfaction among students. The results of measurement with self-determination theory (SDT) show that the autonomy

variable has been applied in the e-learning LMS because of its flexible features. Autonomy research is demonstrated by the extent to which e-learning gives students control and flexibility in their learning experience. E-learning gives students the right to organize their own study time. Moreover, e-learning also provides opportunities for students to manage and determine their learning strategies without any coercion from others. For example, how do students learn in terms of when, where, and how they learn?

Research needs to prove the competence variable in the e-learning system. The LMS studied is applied to the task features, quizzes, and deadlines, which will help improve student competency. The deadline will force students to feel motivated and more diligent in learning so that their learning time becomes more effective, they will have discipline, and they will learn to manage their time well. The relatedness variable is supported by the implementation of online discussion forums, collaborative projects, virtual classes, and chat features, which allow students to interact with each other about the same problems or obstacles in lectures.

SDT theory reveals that if the teachers want to achieve a level of user satisfaction, all three SDT variables need to be fulfilled. Students' most preferred e-learning feature is the flexibility of using e-learning, which can be used anytime and anywhere. Moreover, e-learning helps students organize their time and determine their learning strategy. To ensure student satisfaction with e-learning, all aspects of e-learning implementation must be thoroughly planned. Giving teachers the tools they need to develop novel and innovative lesson plans is one approach to enhancing student satisfaction with e-learning.

Moreover, it is necessary to optimize supporting factors such as improving the display of the user interface, boosting the internet connection's capability, and improving the quality of the e-learning system. Overall, this study supports the application of SDT in e-learning and explains how the three variables influence student satisfaction and engagement during learning. Therefore, meeting students' needs is always important in online education.

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