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# Effectiveness Of E-Learning To Student Learning Satisfaction: A Literature Review

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## Abstract

**Introduction:** E-learning is acquiring knowledge and skills using the Internet, offering learners a versatile and individualized medium for education. It is a novel method of providing high-quality educational services to students through electronic means to enhance their knowledge, abilities, and consistency. Higher education institutions globally are increasingly using several forms of e-learning. Conversely, through engagement, e-learning has secured the improvement of learning abilities, knowledge, and excellence. **Material and Methods:** This study constitutes a comprehensive examination of the current body of literature. The subject matter, comprising publications published between 2018 and 2023, was selected from various internet sources, such as Science Direct, PubMed, and Google Scholar. We employed the PRISMA methodology to analyze the literature review systematically. **Results:** Following a comprehensive evaluation of 14 suitable papers, only 10 of the 183 articles chosen for analysis could be analyzed. Evidence suggests that e-learning can facilitate a fresh comprehension of the essential aspects of effective learning methodologies. **Conclusion:** According to the literature research findings, it was discovered that the e-learning model affects learning satisfaction, which is simultaneous with its influence. The level of contentment that students have with the outcomes of their e-learning experiences can be a primary measure of the quality of education provided in higher education.

**Keywords**: Effectiveness, E-Learning, Student Learning, Satisfaction

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## 1. Introduction

E-learning is acquiring knowledge and skills through the Internet, offering learners a versatile and customized learning environment. It is a novel method of delivering high-quality educational services to learners via electronic devices to enhance their knowledge, abilities consistently, and more (Fazlollahtabar & Muhammadzadeh, 2012). Microsoft Teams, Zoom, and Skype are only some of the online platforms most Indonesian institutions utilize. Web-based education is supported by the Minister of Education and Culture, who also works to improve the capabilities of online platform services to strengthen classroom instruction delivered online. Rumah Belajar Access, Google G Suite Access for Educators, Microsoft Office 365 Access, and Online School Teacher Room Access are some of the access choices that are available to users (Elbanisa & Sueb, 2022).

According to Sahu (2020), several countries' educational institutions are transitioning from traditional classroom teaching to online teaching to provide sustainable and effective education during the pandemic. Zalat et al. (2021) argue that underdeveloped countries only fully employ e-learning after COVID-19, and the global epidemic has compelled nations to depend on e-learning for educational purposes.

Despite e-learning not being a novel concept, its utilization remains restricted. Landrum et al (2021), demonstrate that global higher education institutions are increasingly adopting many modalities of e-learning, which represent unfamiliar terrain for most of these institutions. Universities face a significant and demanding task as they must not only uphold educational standards but also introduce e-learning during the second semester without prior planning, preparation, or adequate technological infrastructure. This poses a considerable challenge for students, lecturers, and administrative teams. The shift to online learning in higher education during the pandemic occurred abruptly. Both instructors and students have a constrained time to prepare for the novel instructional approach. Conversely, e-learning has ensured a rise in learning capacity, knowledge, and excellence through interaction.

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According to Mystakidis et al (2019) , higher student participation in e-learning can increase student knowledge and interest. Universities need to be able to evaluate the quality of the e-learning process to measure the service quality evaluation, after which they can measure the actual student perceptions. This will allow universities to boost the value of their students' education. In addition, this is a significant area that has to be improved to make e-learning more consistent and to ensure that it continues to be an educational tool that supports learning long after the pandemic has ended.

It has been suggested by Samsuden and Muhammad (2019) and Turban et al. (2015) that educational institutions should consider implementing e-learning. From a different point of view, the horizon has been broadened as a result of online learning. According to Garrison (2011), online learning methods enable students to learn from the comfort of their own homes and assist employees in learning and developing their knowledge and abilities while employed. According to AlBusaidi (2013), the learning process can be done offline, online, or a combination of all three. By Ashrafi et al.'s research from 2020, the e-learning system has provided students with a platform that allows them to avoid face-to-face interaction among themselves.

The correlation between interactive learning and content creation serves as a driving force for student engagement in educational activities. This correlation offers significant prospects for self-fulfillment, such as facilitating prompt feedback on ideas, alleviating production obstacles, fostering student interaction, enhancing cognitive stimulation and performance, acquiring insights into learning difficulties, and documenting personal ideas (Shishov et al., 2021).

## 2. Research Method

### Research Design, Setting, and Samples

The study that is being conducted here is a literature review. From 2018 to 2023, articles that were eligible for consideration were chosen. Full-text articles that were readily accessible contained experimental or quasi-experimental research designs and met the inclusion criteria but were not considered. Papers presented at conferences, chapters,

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editorials, theses, and dissertations were not considered for inclusion.

**Data Collection**

The study relied on publications from the electronic databases Science Direct, PubMed, and Google Scholar as sources of information (Goossen et al., 2020). The researcher employed a search method in each database using the keywords Effectivenes, E-Learning, Student Learning, Satisfaction.

**Data Analytics**

Figure 1 demonstrates that researchers adhered to the correct study process using the Preferred Reporting Items for Systematic Reviews and Meta-analysis Statement (PRISMA) technique. This was undertaken to guarantee that the research was executed accurately (Haddaway et al., 2022).

## 3. Results And Discussions

### a. Result

According to the chosen criteria for the search strategy, out of the 183 papers that were selected, 14 studies were carefully examined. Ultimately, 10 qualifying research were chosen and subjected to analysis until completion. The methodology for participant selection in this study is illustrated in Figure 1.

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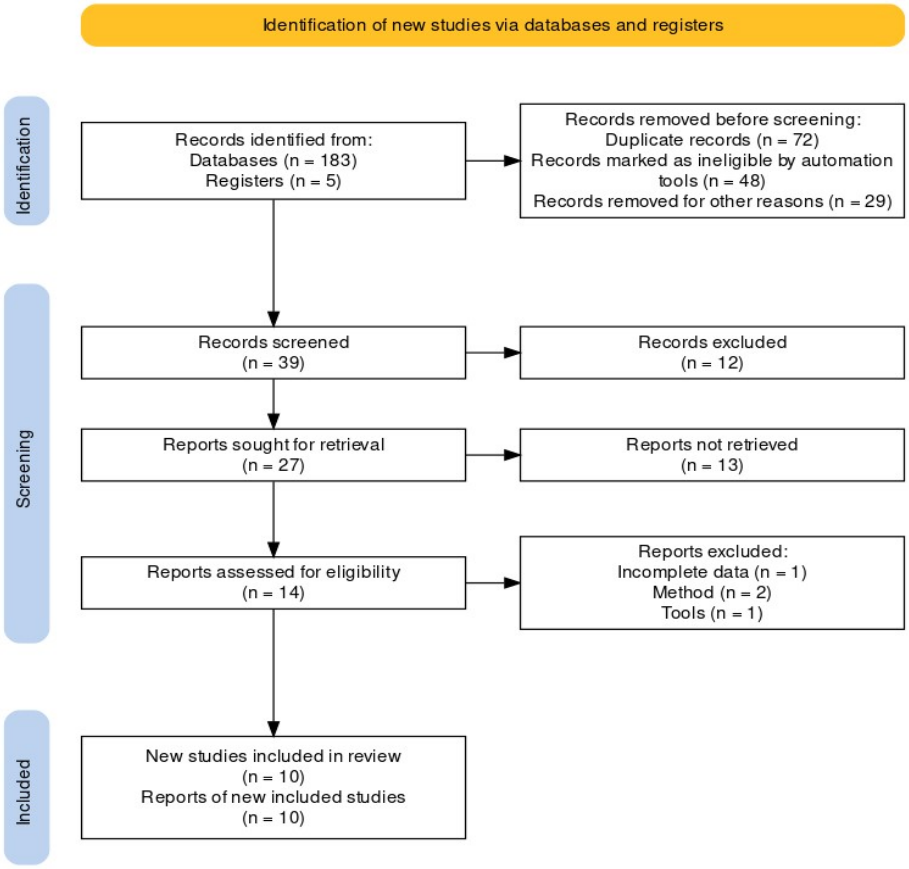

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**Figure 1 Selection Process of Studies Based on PRISMA** (Haddaway et al., 2022)

**Table 1. Result of Article Analysis**

| Author | Sample | Method | Result |
|---|---|---|---|
| (Setiawati, 2023) | 185 Student | The stated research hypotheses and the proposed model were tested in this study using a questionnaire distributed via the Internet and employing quantitative research methods. The structural equation modeling (SEM) software AMOS 20.0 was utilized to analyze and test the data. | Improving the students' satisfaction. The enhancement of e-learning quality has resulted in heightened student satisfaction, hence leading to substantial enhancements in the efficiency and efficacy of students' online learning performance and outcomes. The acceptability of e-learning among students and teachers is strongly and significantly related to the exchange of knowledge, the availability of communication facilities, motivation and use, and the acceptance of e-learning. |
| (Nikou & Maslov, 2023) | 131 Student | The objective of this study is to identify and examine the factors that impact students' contentment with the results of their online learning encounters amid the pandemic. The proposed research model was analyzed with the help of a technique known as structural equation modeling (SEM). | The quality of the online course design, the quality of the information technology (both in terms of quality and accessibility), and the digital community inside e-learning all directly impact the degree to which students are satisfied with the outcomes of their experiences with e-learning. |
| (Poerwita Sary & Herlambang, 2019) | Data was collected using a questionnaire distributed to 100 students who use e-learning as respondents. | The researcher employed descriptive analysis and basic linear regression. | According to the findings, the effectiveness of the implementation of the e-learning program and the level of satisfaction with the learning were both high. Additionally, the installation of e-learning programs has a considerable positive impact on the level of pleasure students develop with their educational experiences. This indicates that students' level of satisfaction with their learning is directly proportional to the effectiveness of the |

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| | | | implementation of the e-learning program. |
| (Tj & Tanuraharjo, 2020) | 64 student mangement | A method for analyzing data is known as the Structural Equation Model (SEM). This study aims to investigate and analyze the correlation between the quality of online learning services and the level of satisfaction experienced by management students who are enrolled in programs on organizational behavior and resource management. | Through this research, it has been effectively demonstrated that the quality of online learning services makes an excellent contribution to the satisfaction of students. |
| (Wan Mamat et al., 2022) | 349 students at a public university in Malaysia. | A cross-sectional quantitative study with convenience sampling study | The majority of those who participated in the survey expressed contentment with using e-learning, which was regarded as efficient. There is a statistically significant correlation between the living environment off-campus and the level of pleasure in e-learning, with a p-value of less than 0.05. |
| (El-Sofany & El-Haggar, 2020) | 200 Student | An endeavor to conduct a quasi-experiment. This article examines the influence of mobile learning strategies on students' overall academic achievements. Implications of cross-disciplinary learning in higher education. This research examines the impact of mobile technology on e-learning in higher education institutions to enhance teaching methodologies and learning outcomes. This study aims to determine students' attitudes toward adopting mobile technologies and evaluate the effectiveness of mobile services for academic and social use. | Positive student perceptions, the facilitation of student concentration, the flexibility of access to m-services for learning, and the improvement of student skills in using mobile technology for e-learning are significant results of this research study about incorporating mobile technology into teaching. |

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| (Rachmawati et al., 2023) | One hundred students who were enrolled in three different study programs within the Department of Economics and were receiving instruction in Human Resource Management (HRM) classes through e-learning were the subjects of this study. | The research methodology employs descriptive verification, with the descriptive aspect utilized to elucidate the hierarchical order of addressing obstacles in e-learning. In contrast, the verification aspect is employed to assess the simultaneous and partial impact of e-learning on learning results. The study employs multiple linear regression and service-equal analyses to examine the learning outcomes. | The findings indicate that the reliability variable has the highest impact on student satisfaction, while the guarantee variable has the lowest impact. Additionally, the tangible evidence variable does not have any effect on satisfaction. Furthermore, the attributes that should be prioritized for improvement are the timeliness of teaching, teachers providing explanations for learning materials, and the use of e-learning platforms. |
| (Hoerunnisa et al., 2019) | 64 Students | The method of quasi-experimentation was utilized in this research project. The topic of sharing devices was the subject of this investigation, which was carried out in the Multimedia class during the fundamental computer and network lectures. A technique known as random sampling was utilized in order to choose class samples. There were 31 pupils in the experimental class, while 33 students were in the control class throughout the experiment. | The findings of this research indicate that the utilization of e-learning media has the potential to considerably enhance students' academic performance and motivation in fundamental computer and network disciplines, specifically about the topic of sharing equipment. It is also possible for the use of e-learning to increase student participation in the learning process. |
| (Saputri et al., 2022) | 334 Students | Quantitative and causality methodologies are utilized in this research, and SEM PLS is the analysis technique. The findings provide light on how the e-learning service's quality influences the e-learning system's quality. This includes the quality of the teaching and e-learning materials, as well as the quality of the personnel and the professional who provides e-learning assistance. | At Telkom University, the quality of the e-learning service substantially influences the level of satisfaction experienced by e-learning users by 85.9%. E-learning user satisfaction significantly impacts e-learning user loyalty, with a correlation of eighty percent among students at Telkom University. The usage of an e-learning system has a significant impact on the level of satisfaction and loyalty that |

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| | | | students at Telkom University experience. This is because the medium of instruction is a learning management system (LMS), which makes it simple for students to access materials and learn independently. |
| (Alqahtani et al., 2022) | 446 Studens | A quantitative approach is used, and this study makes use of a survey that is quantitatively analytical. Within the framework of the application of e-learning, the TAM, EDQ, and SOI models | The findings contribute to the existing information by indicating that students can improve their e-learning experience through EDQ, SOI, and PE. Most students concur that student happiness significantly impacts the utilization of e-learning technologies, improving their capacity to study more efficiently. |

**b. Discussion**

According to Fülöp et al (2023), e-learning may be a new paradigm emphasizing information and communication technology (ICT) to provide learners with methodically learning content and information for education and training. Additionally, e-learning systems may involve accompanying concepts, such as digital communication, whose aim may be motivated by goals other than simply the online transmission of knowledge. E-learning systems are based on the online transmission of knowledge, but they may also involve other concepts. For example, e-learning can improve personal career fulfillment, enable the integration of human resource management systems, and increase the productivity and satisfaction of e-learners. These are just some of the alternative perspectives that exist regarding e-learning. E-learning is not only a method for delivering information for education and training, but it can also be used for other purposes (Balogun & Enemuo, 2022).

It has been stated that having students communicate with one another and participate in online communities allows them to increase their knowledge and comprehension (Koh & Kan, 2021). Through a collaborative learning management system,

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students can establish educational communities in which they can generate information, share it, and discuss it with other members of a broader learning community or with other students outside of the classroom.

In research Setiawati (2023), with 185 student, this study employed quantitative approaches to examine the offered research hypotheses and evaluate the proposed model through an online questionnaire. In order to examine and validate the data, the software AMOS 20.0 was employed, specifically utilizing SEM (structural equation modeling). The results show that enhancing the caliber of e-learning has improved student happiness, resulting in enhanced efficiency and effectiveness of student online learning performance and outcomes. A robust and meaningful correlation exists between information sharing, communication infrastructure, motivation and utilization, and acceptance of e-learning among students and teachers. According to the findings of a previous study conducted by Taghizadeh & Hajhosseini, (2021), it has been shown that student satisfaction with the outcomes of e-learning is theoretically influenced by student-student interaction, practical support, learning resources, and the learning environment.

This study aims to identify and evaluate the factors that influence students' satisfaction with the outcomes of their e-learning experiences during the pandemic. This research aligns with research conducted on 131 students by Nikou & Maslov (2023) he same researchers. The proposed research model was analyzed with the help of a technique known as structural equation modeling (SEM). According to the findings of the structural equation modeling (SEM), the degree to which students are content with the results of their e-learning experiences is directly influenced by several factors, including the quality of the design of online courses, the accessibility of information technology, and the digital community that exists within the electronic learning environment (Nikou & Maslov, 2023).

According to Abbad (2021), Students with a greater degree of positive intent to use e-learning systems reported higher levels of satisfaction with the results of their experiences with e-learning. We recommend that those in higher education institutions responsible for making decisions and formulating policies prioritize increasing student satisfaction with e-

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learning. This can be accomplished by improving the information technology infrastructure of these institutions (both in terms of accessibility and quality) and their ability to provide distance learning services.

Research conducted by El-Sofany & El-Haggar (2020), which examines the impact of implementing mobile learning strategies to enhance learning outcomes in higher education, this information is consistent with the findings. The purpose of this research is to conduct a study of e-learning that uses mobile technology to improve teaching tactics and learning performance in organizations associated with higher education. This research aims to determine how students feel about the acceptance of mobile technologies and evaluate the quality of mobile services for academic and social reasons. Positive student perceptions, the facilitation of student concentration, the flexibility of access to m-services for learning, and the improvement of student skills in using mobile technology for e-learning are significant results of this research study about incorporating mobile technology into teaching.

Additionally, according to the findings of a survey that was conducted on the viewpoints of educators working in higher education institutions, it was discovered that several obstacles affected the readiness of education to give e-learning (Wagiran et al., 2022). According to Hasan & Bao (2020), it was shown that students may experience severe psychological stress while attending school during the pandemic. Furthermore, it was discovered that students may prefer traditional face-to-face learning sessions. On the other hand, e-learning and developing methodologies and technologies connected to e-learning have gained much attention. This is because of the necessity to adapt to the educational process in the environment of higher education. According to Hong et al (2021), some people believe that the availability of information and communication technology (ICT) and the Internet to design and deliver education has become a new problem in order to meet the far more extensive data consumption using applications and learning tools that are utilized in e-learning. Due to this, e-learning will face considerable challenges in terms of both the technical (reliability of information and communication

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technology, availability of equipment) and social aspects (the capability of teachers to deliver e-learning, difficulties experienced by students).

The six characteristics of student, instructor, course, technology, design, and learning environment all have a role in determining how satisfied learners are with their e-learning experiences. In a similar Prifti (2022) contend that the interactive learning environment, perceived self-efficacy, and perceived anxiety are all factors that might have an effect on the level of satisfaction that an individual experiences. As an additional point of interest, Zheng et al (2023) suggest that the quality of the system, the quality of the content, and the quality of the service all have a considerable influence on the level of pleasure that users have while using e-learning systems, which in turn has a significant impact on the users' intention to use e-learning systems. Therefore, various possible factors can affect the pleasure of e-learning.

One of the most important indicators of the quality of higher education is the extent to which students are content with the results of their experiences having participated in e-learning. It is logical to anticipate that a higher level of satisfaction will be related to a more significant probability of success in the learning process, ultimately resulting in improved learning performance. It is possible to gain fresh insights into the fundamental to core issues of successful learning practices by assessing and evaluating the aspects that influence student satisfaction with the outcomes of e-learning (Yawson & Yamoah, 2020). Several factors play a role in determining the level of satisfaction and future use of e-learning. These factors include the perceived utility of the learning knowledge provided, the low complexity of the outputs of e-learning, and the availability of user technical support.

## 4. Conclusion

The literature research revealed that the e-learning approach simultaneously impacts learner satisfaction. Student satisfaction with e-learning results is a primary indication of education quality in higher education. A positive correlation can be inferred between a greater level of happiness and an increased likelihood of success in the learning process, resulting in improved learning performance. Analyzing and evaluating the factors

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that impact student satisfaction with e-learning outcomes might offer fresh perspectives on the essential aspects of effective learning methods.

## 5. Compliance with ethical standards

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### Disclosure of conflict of interest

We thus declare that there is no potential for a conflict of interest due to the fact that we are doing the research.

### Statement of informed consent

In our line of work as authors, we rely on consent or agreement from both parties.

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