

The Concept Of E-Learning As A Learning Medium

Erlina Eka Wati^{1*}, Masna Bintu Aida Husnia², Bakti Fatwa Anbiya³

¹ Walisongo State Islamic University Semarang; erlinaeka2201@gmail.com

² Walisongo State Islamic University Semarang; masnabinta5@gmail.com

³ Walisongo State Islamic University Semarang; baktifatwaanbiya@walisongo.ac.id

ABSTRACT

This study aims to explain the concept of E-Learning in general as a learning medium in the digital era which includes: 1) definition; 2) characteristics and benefits; 3) advantages, disadvantages, constraints and effectiveness of application; 4) analysis and development design; 5) the functioning of the e-learning system; 6) the development of "Search Engines"; and 7) learning sites or e-learning websites. The method used in this study is a descriptive qualitative method through a literature study approach. Data is collected through various relevant literacy sources such as books, articles, journals, and others. This study shows the importance of appropriate learning media to help achieve learning objectives. This study is expected to add insight for readers related to one of the learning media innovations in the digital era, namely e-learning. This study has implications in the field of education, especially in improving the efficiency and effectiveness of learning. Through e-learning one can access a wider range of knowledge that can help in the learning process.

Keywords: Electronic Learning, Information Technology, Learning Media.

INTRODUCTION

In the context of globalization and the development of information technology, learning in the digital era has become an urgent need. Social facts show that most people today have internet access, which allows them to access information and interact online. This shows that digital learning platforms, such as web E-learning, have great potential to influence the way one learns and teaches in this era. Especially in the context of a global pandemic like COVID-19, where physical restrictions are forcing educators and learners to look for alternative learning solutions that can be accessed remotely.

Some learning theories that support the concept of e-learning include: 1) Constructivism theory (Pieget and Vygotsky). This theory emphasizes that learning is an active process by which learners will build new knowledge based on their experiences. Vigotsky stated that individuals are not separate from their background and social roles. While Pieget emphasizes that the learning process is oriented to the individual (Kusumaningpuri, 2021). Therefore, E-Learning here provides an interactive learning environment. 2) Cognitive theory (Bruner). This theory states that learning is an active process in which individuals develop new concepts and schemes. E-learning supports this by providing a variety of content formats that assist learners in developing understanding (Sundari and Fauziati, 2021). 3) Social Theory (Bandura). This theory emphasizes the importance of

learning through observation and social interaction (Tullah and Amiruddin, 2020). E-learning here provides a platform for collaboration and discussion that supports social learning, such as google meet, google classroom, and so on.

A literature review shows that web E-learning has taken center stage in the field of education. Various studies have highlighted the advantages and challenges in the implementation of online learning. Literature facts also reveal that the use of E-learning web technology can increase the flexibility of time and space in the learning process, allowing wider accessibility for learners from diverse backgrounds. This research aims to explore the use of E-learning web platforms in the context of learning in the digital era. This research makes a new contribution by focusing on an in-depth analysis of the use of E-Learning web and its characteristics in the context of learning in the digital age. By taking into account the latest technological developments and learning trends in the digital era, this research provides new insights into the challenges and opportunities faced in the implementation of E-Learning.

The difference between this study and previous research mainly lies in its deeper focus on specific aspects of the use of web E-Learning in learning in the digital age. Previous research may have identified common uses of E-Learning in the context of online learning, but this study adds new contributions by analyzing in detail the specific characteristics of E-Learning, such as interaction, independence, accessibility, and enrichment. In addition, this study also examines the impact of these aspects on learning efficiency and effectiveness, providing a deeper understanding of how E-Learning affects the overall teaching and learning process.

The contribution of this research to the advancement of science includes making new contributions by analyzing in detail the specific characteristics of E-Learning, such as interaction, independence, accessibility, and enrichment; examining the impact of aspects of E-Learning on the overall efficiency and effectiveness of learning; and improving equal access to education worldwide. Thus, this research makes a significant contribution in advancing the understanding and practical development of the use of web E-Learning in education in the digital age.

METHODS

This research uses qualitative descriptive methods to gain a deeper understanding of the use of E-Learning as a learning medium. The literature study approach is used to collect data from various sources such as journal articles, e-books, and books. The data is analyzed by comparing information from various sources, then restated in the form of descriptions without the use of research measuring instruments.

The purpose of this study is to provide a comprehensive overview of the innovation of using E-Learning in the teaching and learning process, focusing on educators and learners in an educational context. The scope of research covers various aspects of E-Learning, including understanding, characteristics, benefits, advantages, disadvantages, constraints, effectiveness, analysis and development design, functions, search engine development, and the role of learning sites. This

research is directed at the education sector and uses data collection techniques through the search for relevant reference sources, which are then analyzed to produce descriptive data.

RESULTS AND DISCUSSION

Basic Perception and Understanding of E-Learning

E-learning comes from the word electronic learning which means learning using electronic devices, while the term electronics is a computer or internet (Chusna, 2019). E-learning is all teaching and learning with electronic circuits (LAN, WAN, or Internet) to deliver learning content, communication or instruction (Koran, 2002). E-learning is a form of distance learning carried out through internet media. E-Learning learning can take place anytime and anywhere without having to meet face to face (Sati et al., 2022). E-learning is a teaching process that uses electronic devices to create, develop, share knowledge, evaluate and advance the teaching and learning process where students become the center of learning and are carried out interactively anywhere and anytime (Chusna, 2019). E-Learning is often referred to as Online learning, Web-based learning, computer-based training/learning, distance learning, computer-aided instruction, virtual class, and so on (Prawiradilaga et al., 2013).

Here are some opinions from experts about the meaning of E-Learning:

1. According to Rusman, et al. E-learning comes from two words, namely "E" which means electronics and learning which means learning. Therefore, e-learning is learning through electronic devices such as computers or other devices (Rusman et al., 2011).
2. According to Ali Mudlofiri et al, E-learning is the teaching of information technology in the form of a virtual school, where the entire teaching and learning process takes place virtually through self-downloadable material (Mudlofir, 2016).
3. According to Chandrawati (2010), E-learning can be understood as learning that utilizes information technology to deliver material and communication between educators and learners (Chandrawati et al., 2010).
4. Dong argues that E-learning is learning that takes place through computer electronic devices where the learning material obtained is in accordance with their needs (Setiawardhani, 2013).
5. Darin E. Hartley defines E-learning as a type of teaching and learning that allows the delivery of teaching materials to students through the internet, intranet, or other computer network media (Muna, 2015).

From some of the definitions above, it can be said that E-learning is a learning process using information and communication technology through the internet, intranet, or other computer network media that allows students to be able to access various learning resources and knowledge more efficiently anytime and anywhere. So, the learning process is not only fixated on educators.

Characteristics and Benefits of E-Learning

In its use, E-learning has its own characteristics or characteristics. Here are some characteristics possessed by E-learning:

1. **Interactivity**
In E-learning-based learning, communication paths between educators and students can take place more broadly. They can communicate both directly (synchronus), such as messenger or chat and indirectly (asynchronus), such as mailing lists, forums, or guest books.
2. **Independency**
The use of E-learning in the learning process can help students to learn and find learning resources more independently. E-learning provides flexibility in time, teachers, place, and teaching materials. Here, the teaching and learning process is centered on students (student-center learning). Students do not only depend on educators, they can easily access various materials or learning materials on E-learning through internet media.
3. **Accessibility**
E-learning provides access to a very wide internet network. Its use in the learning process allows students to be able to access various educational resources and insights easily and broadly than conventional learning.
4. **Enrichment**
Enrichment is the process of enriching or expanding students' knowledge through the provision of additional assignments. Examples of enrichment that can be given to the use of E-learning such as teaching and learning activities, presentation of lecture materials or learning through information technology devices such as video streaming, simulation, and animation (Us and Mahdayeni, 2019).

The benefits of using E-learning in general according to K. Wulf (1996: 10) are as follows:

1. **Increase communication space between students and educators or instructors.**
The purpose of increasing the communication space here is to provide opportunities both for students and between students to interact with each other more broadly. Another case with conventional learning activities, where the opportunity for discussion provided by educators is very limited. Usually, these opportunities are also only dominated by certain students who are responsive and brave in their opinions. In addition, there are still students who tend to have an attitude of shyness or hesitation and do not dare to argue because they feel afraid or watched or pressure from classmates. Through this E-learning, students who are shy or afraid to argue in the classroom will have wider opportunities to express their arguments.
2. **Enable learning interactions from anywhere and anytime**
Here learners are not strictly bound by the time and place of learning. They can access various learning resources through the internet anytime and anywhere. Likewise, with various assignments, E-learning can provide access to online assignment collection without having to meet with educators in person.
3. **Help reach many students**

Through E-learning, learning can be done by anyone, anytime, and anywhere without being hindered by space, place, and time. Electronic learning can reach a wider number of students. So as to provide extensive learning opportunities for anyone who needs it.

4. Make it easy to enhance and store learning materials

Various developments in existing facilities can help facilitate the development of electronic teaching materials, including improvements or updates of teaching materials according to the demands of the development of scientific materials can be done periodically and easily. In addition, it can also facilitate the improvement of the method of presenting learning materials both based on student feedback and teacher assessment results. Teachers are tasked with monitoring and motivating every learning activity of their students (Setiawardhani, 2013).

Advantages, Disadvantages, Constraints and Effectiveness of E-Learning Application

Everything created must have their own advantages and disadvantages, including this E-Learning-based learning media. The advantages and disadvantages of E Learning-based learning media include:

Excess:

E-learning as one of the learning media has several advantages including,

1. Provide a variety of access to diverse learning materials.
2. Helping the quality of learners to be more optimal.
3. User friendly, its use is simpler.
4. A safe, comfortable, and healthy way to learn.
5. Save time in the learning process.
6. The knowledge and knowledge of students can develop, and students can be more independent.
7. No paper.
8. Students can access as they wish, so it is more flexible.
9. Availability of e-moderating facilities.

Deficiency:

Here are some of the shortcomings possessed by E-Learning-based learning media:

1. Can cause dependence for users if they cannot use it wisely.
2. The decline in direct interaction between teachers and students and between students themselves is rare due to the use of E-learning as the main means of communication, so that it can hinder the development of values when carrying out teaching and learning.
3. There is an influence to further encourage the growth of business value, which causes a lack of attention to academic and social aspects.
4. Educators are experiencing a change from previously prioritizing conventional learning techniques.
5. More emphasis on training than education.
6. Uneven internet access in various regions is due to lack of infrastructure such as electricity, telephone, and internet.

7. Low motivation students tend to fail.
8. The low ability of students to use the internet (Magdalena, 2020).

Challenges and Effectiveness of E-Learning Application in Learning

A number of teachers in Indonesia were already using online learning before the government implemented social distancing policies. However, the term online learning became more popular after the policy. This online learning generally involves assigning assignments to learners through an application, which is then checked by educators to be used as an assessment method, and commented on as a form of evaluation. Each education system certainly has its own challenges in its implementation, here are some challenges that exist in the implementation of the E-Learning system, especially those that occurred during the Covid-19 pandemic:

1. Technology and Accessibility Challenges:
 - Limitations of technology and accessibility that can complicate the learning process online. This is an example of what happened during the Covid-19 pandemic.
 - Not all learners have adequate access to electronic devices and the internet.
 - Accessibility difficulties exacerbate learning gaps between learners.
 - Students without accessibility can have difficulty accessing materials, assignments, and online communication. This certainly affects the quality of learning and the achievement of student goals.
2. Concentration and Motivation Challenges:
 - Environmental distractions, technical problems, and lack of variety of learning methods that can interfere with student concentration.
 - Task piling up, lack of support, and boredom can affect learners' learning motivation.
 - Technological inconvenience, lack of social interaction, fatigue, and uncertainty of the future that affect learning motivation.
3. Challenges of Lack of Social and Emotional Support:
 - Online learning makes learners feel lonely and lack social interaction.
 - Lack of emotional support from teachers and classmates that can affect the motivation to learn students.
 - Difficulty in asking for help or support due to unstable internet connection or inadequate devices. This can increase stress, anxiety, and feelings of loneliness in learners. (Sholihah et al., 2023).

However, despite facing these obstacles, the application of E-Learning still has great potential to improve learning effectiveness. With careful planning and careful management, these challenges can be overcome. Support from governments, schools, and communities can help improve technology accessibility, while training and mentoring for educators and learners can improve understanding and skills in using E-Learning platforms. In addition, the development of interesting and interactive content and inclusive learning approaches can also increase the effectiveness of E-Learning in providing a

meaningful and comprehensive learning experience for all students (Fitriana et al., 2018).

Analysis and Design of Developing E-Learning

Mardi stated that system analysis is a performance process to test existing information systems with their environment to receive various suggestions as a form of improving system capabilities. This step is a critical step and is very important because an error in this step will result in an error in the next step. While system design is the process of assembling or developing a new information system (Susanto, 2004). In this step, all conditions related to the production of information systems are met. The results of the planned system must correspond to the needs of obtaining user information. In addition, it should also be noted that the system that is ready must be able to be developed further.

Before entering the analysis and design stage of E-Learning development. The following is one example of the display of the E-Learning system at Walisongo State Islamic University Semarang. This system is known as E-Learning Walisongo.

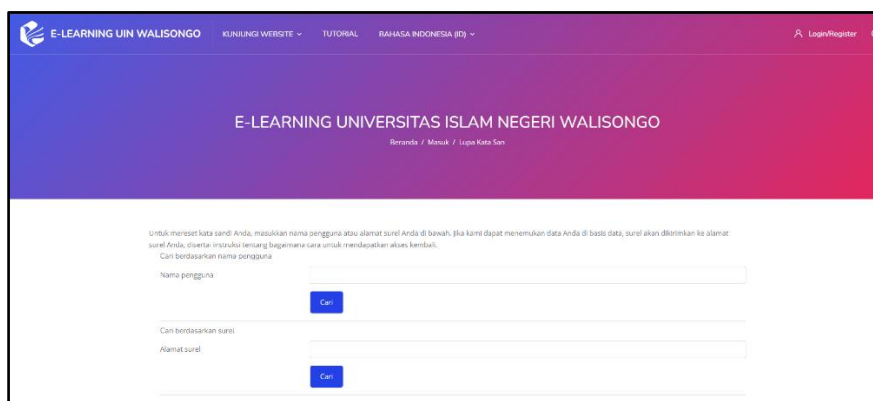


Figure 1. Login Display of UIN Walisongo Semarang E-learning Website

The Walisongo E-Learning system is used as one of the online learning media through internet access. In figure 1, it is shown on the home menu display and login. This view is usually used by all students who have not logged into their E-Learning account. To log in, simply enter the student's NIM and password that has been given by the campus (Khasanah and Anbiya, 2023).

Based on research that has been conducted by previous researchers, namely research conducted by F. Komendangi, et al. in their article entitled "Analysis and Design of E-Learning Applications Based on Learning Management System (LMS) Moodle in the Agricultural Engineering Study Program of Sam Ratulangi University", there are several steps in conducting analysis and design to develop E-Learning. Here are the steps in conducting a system analysis:

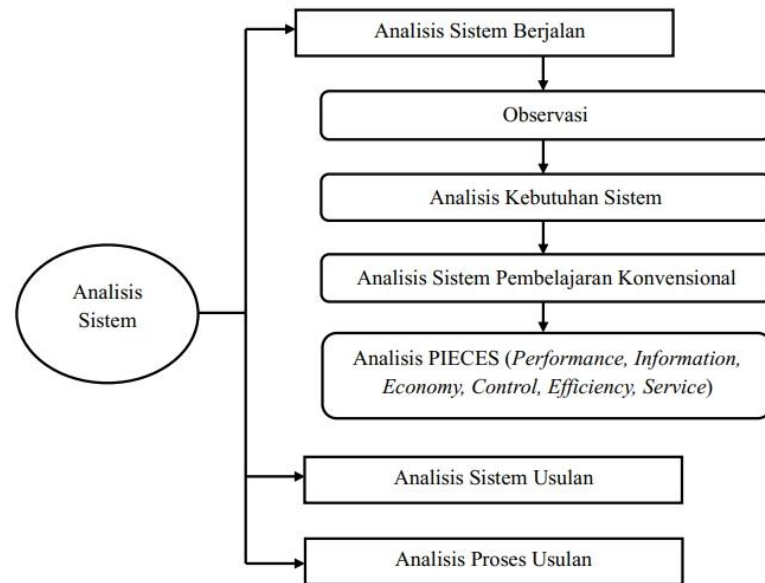


Figure 2. System Analysis Steps

In running system analysis, observation is used to look for problems that need to be improved in the learning process. Then problem solving is carried out through system requirements analysis. In the analysis of conventional learning systems, it is explained how the flow of the previous learning system from the beginning to the end of learning. While the PIECES analysis was used to build the new system, namely E-learning. This analysis is useful as a measuring tool in finding out whether the new system is feasible or not to use.

In the analysis of the proposal system, a proposal is carried out that can be a solution to existing problems. For example, the offering of an electronic learning system (E-learning) based on LMS moodle as a complement to the conventional learning system at the Agricultural Engineering Study Program of Sam Ratulangi University.

In the analysis of the proposal process, processing of proposals that have been given is carried out by making a design that will be contained in it. For example, loading context diagrams and E-learning application designs using customize on Moodle LMS, XAMPP Web Server applications and one of the Web Browsers (Mozilla firefox).

Here are the steps in designing the system:

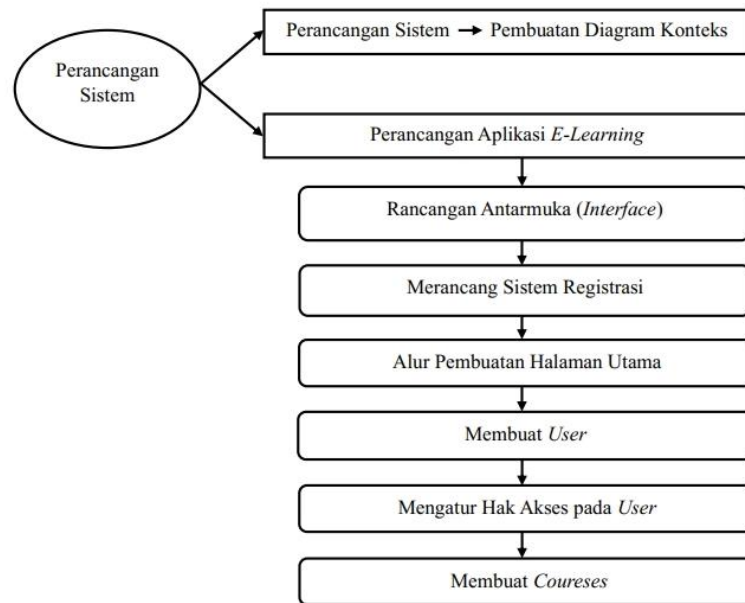


Figure 3. System Design Steps

System design begins with the creation of a context diagram that explains the general process of creating an electronic learning system (E-learning). Then proceed to design offline E-learning applications before publication (online). The design of this E-learning application includes interface design, designing a registration system through an authentication system, the flow of creating main pages, creating users, setting access rights to users, and creating courses.

After the analysis and design stage of the E-learning system is complete, the next stage is implementation. Implementation is the application of the results of analysis and design that has been carried out to find out whether the system can be used according to its purpose or not (Komendangi et al., 2017).

E-Learning Functions and Systems

Siahaan (2002) conveyed the three functions of the E-learning learning system for teaching and learning activities in the classroom, namely as follows:

1. Works as a Supplement (Additional)

It is said to be a supplement or addition here that is when students have the freedom to use electronic learning materials or not. Learners are not required to access electronic learning materials. However, for anyone who uses it, they will certainly gain additional knowledge or knowledge.

2. Serves as a Complement

It is said to be complementary, which is when electronic learning materials are programmed to complement learning materials in the classroom (Lewis, 2002). This means that electronic learning materials here are used as reinforcement or remedial materials for students in conventional teaching and learning activities. Enrichment programs are intended for students who have the ability to understand quickly, namely by giving them the opportunity to access electronic learning materials that are developed for them. This aims to solidify his level of mastery of the given material.

While the remedial program is intended for students who have difficulty in understanding the material provided. They are given the opportunity to access e-learning materials designed for them. This aims to make it easier for them to understand the material provided.

3. Serves as a Substitution (Substitute)

It is said to be a substitute when a college or school offers its students several alternative models of learning activities or lectures. This aims to provide opportunities for them to be able to manage their learning activities or lectures flexibly according to their respective times and activities).

Development of "Search Engine" E-Learning Systems

Search engines are tools developed for computer systems, especially the internet. Search engines function to search and find examples of search words or phrases that can be found in documents covered by the scope of the tool (Ahmad et al., 2021). Developing Search Engine E-learning systems is a complex process, which changes the way information and subject matter are searched digitally. E-learning system search engine is a search system to collect and organize various information, materials, and educational technology that can be accessed via the internet. Here are some ways that can be applied to develop Search engine E-learning systems:

1. Main Component Development

Developing an E-learning Search engine system requires the development of major components, such as databases, web servers, web programming, passwords, and interfaces. Database is a key component in E-learning, which will accommodate and process data from students, lecturers, visitors, members, customers, and administrative employees in managing learning materials, lecture notes, schedules, questions and answers, assessments, student and lecturer information, news, and other elements related to E-learning needs.

2. Integration with E-Learning Platforms

Search engine E-learning system must be able to integrate with the E-learning platform used. This allows users to access relevant information and subject matter on the desired keywords. This integration also allows users to access information and subject matter through Search engine E-learning systems.

3. Interface Development

Developing an E-learning Search engine system also requires developing interfaces that are very easy to understand and very easy to use. This interface should be able to return search results that are structured and easy to understand. The development of this interface also allows users to access information and subject matter through the E-learning system Search engine easily (Munir, 2021).

Developing an effective search engine in an E-learning system is an important step to ensure accessibility and efficiency in the search for educational information. One method that can be used is to gain an understanding of user needs

and the content available in the E-learning platform aforementioned. This analysis can help in designing search features that suit user needs, such as topic-based filters, difficulty levels, or types of learning materials (Ramadhan et al., 2017).

Evaluation and updates to the search engines developed are also important to do. Through usage analysis and feedback from users, developers can identify areas that need improvement or improvement in those search engines. With this approach, the development of search engine E-learning systems can continue to develop and adapt to user needs and ongoing information technology developments (Anugrah et al., 2015).

Learning Sites or E-Learning Websites

E-learning website learning site is a digital platform that collects various information, materials, and educational technology that can be accessed via the internet. Here, teachers and students can access various course materials, perform assignments, and follow discussions through digital media. E-learning is one of the learning strategies used to adapt to the Covid-19 pandemic, which allows learning to be carried out online. E-learning uses various platforms and technologies, such as learning management systems (LMS), streaming, video on demand (VOD), websites, and educational voice radio (Suryaningsih, 2022). Teachers can use digital technology-based learning resources that are already available or available, and develop their own. E-learning can also facilitate the learning process, such as collecting assignments and discussions with friends.

Overall, the E-learning website is a platform that provides a variety of information, materials, and educational technology digitally, which can be used to change the way learning into the digital era. However, the use of e-learning also requires special attention and good control from the teacher's side, as well as adjustments to students' abilities (Lutfi, 2021).

E-learning sites or websites that are easy to access to facilitate learning include:

- a. Ruangguru: Ruangguru is one of the largest E-learning introductory in Indonesia that offers a wide range of curriculum content from primary to secondary education levels. They also provide online private tutoring to help students understand the material better.
- b. Quipper: Quipper provides digital learning content from elementary to high school levels that fits the national curriculum. They offer learning videos, interactive practice questions, and material reviews to help students prepare for exams.
- c. Zenius: Zenius provides digital learning materials for various school levels, from elementary to high school, as well as exam preparation such as UN and SBMPTN. They offer learning videos, practice questions, and material reviews that are systematically arranged according to the national curriculum.

CONCLUSION

From the research that has been done, it can be concluded that E-learning is a learning process using information and communication technology through internet media, intranets, or other computer network media that allows students

to be able to access various learning resources and knowledge more efficiently anytime and anywhere. The characteristics of E-Learning are Interaction, Independence, Accessibility, and Enrichment. E-Learning utilizes information technology to provide effective and efficient access to learning, anytime and anywhere. Access to learning materials provided varies, but can also cause dependency for users. The main challenge of E-Learning is the accessibility of technology, but its application still has great potential to improve the effectiveness of learning.

The steps of system analysis and application design E-Learning provide a clear view of its implementation. E-Learning serves as a supplement, complement, and substitution. The development of Search engine E-learning systems can be through several ways including the development of main components, integration with E-learning platforms, and interface development or understanding user needs and available content. Learning sites or E-Learning websites have an important role in the learning process. Through understanding the concept of E-Learning, it is hoped that it can be an inspiration for educators to be able to apply it in the learning process well, in order to help achieve learning objectives.

This research is still limited to the concept of using E-Learning systems in general as one of the learning media innovations in the digital era. Therefore, the author hopes that the next researcher can continue this research to focus more on one of the E-Learning sites or applications themselves. Both carried out through qualitative and quantitative methods. It is hoped that this research can add insight and knowledge that is useful for readers, especially those who are pursuing in the field of education.

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