

# The Influence of Multimedia Technology on Deep Learning E-Learning Application

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## ABSTRACT

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In this research we collected data from a number of users of e-learning applications that have different multimedia features. We do this through survey methods and statistical analysis. Multimedia technology has become an important component in e-learning platforms, allowing users to interact with learning materials more dynamically. The research results show that multimedia technology has a significant positive effect on the e-learning user experience. When multimedia is used effectively, users feel more engaged, understand the material better, and are more satisfied with their learning experience. These results indicate that instructors and e-learning platform developers have significant benefits in improving the efficiency of online learning. This research provides useful insights into the role of multimedia technology in enhancing experiences.

**Keywords:** *E-Learning Media, Learning Motivation, Learning Media*

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## 1. INTRODUCTION

One very important component for sustainable community development is education. Learning approaches have also experienced major changes as a result of technological developments. One form of change is the application of multimedia technology in the learning process, especially through e-learning applications. Multimedia technology not only enriches the learning process, but also allows more people to get information. The influence of multimedia technology on user experience in e-learning applications is a research topic that is having an increasing impact in today's digital education world. E-learning applications have become one of the main solutions in providing more flexible and globally accessible access to education. Therefore, a deep understanding of how multimedia technologies influence user experience in this context is essential.

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E-learning is a new learning model that has many benefits for the world of education to overcome the shortcomings and weaknesses of conventional education (education as a whole), including space and time limitations [1]. Electronic learning, also known as e-learning, began in the 1970s. Some terms used to describe e-learning include online learning, internet-supported learning, virtual learning, or web-based learning [3]. The use of e-learning conditions students to learn more actively and independently, in the implementation of learning whether carried out individually or in groups, or carried out in class or outside class [2]. One of the reasons why students should study

independently is the many learning resources available to them today. Not only at school, students can now learn from teachers but also from other sources. They must now actively learn independently [9]. There are 5 indicators of E-Learning, namely the first is the Theory of Independence and Autonomy, which is the independence that students must have in the learning process. Distance education has the potential to create independence and autonomy because it offers learning options, so that learning potential and capacity develops individually. The second indicator is the Self-Regulated Learning theory. This theory emphasizes the importance of self-regulation in following learning processes and programs. One way to identify a measure of self-regulated learning is a person's own understanding of their knowledge system. The third indicator is the theory of industrialization of teaching. Distance research will be more effective using the division of labor principle, namely the division of tasks into simpler components. In industrialization theory, the learning process can be regulated through controlling mechanisms and automating various components in it with illustrations so that students are able to increase their insight. The fourth indicator is interaction theory, material for distance learning is a communication style that does not border as a conversational instrument, such as interaction between students and educators. Students are able to interact remotely with educators, this increases efficiency and effectiveness in the learning process. The fifth indicator is Communication, where distance education does not reduce communication in the learning process, because communication can be done using technology [11]. This shows that current advances in learning have resulted in e-learning that uses advanced technology such as computers, laptops or smartphones [6].

Learning strategy is one of the factors that influences the achievement of graduate competencies. Learning strategies have experienced quite rapid development along with the development of Information and Communication Technology (ICT). One of them is e-Learning. e-Learning has become a necessity for the academic community, considering that both lecturers, students and educational institutions have utilized computer technology in the process of teaching and learning activities [7]. E-Learning is a form of utilizing internet technology for learning experiences. E-Learning can also be seen as a form of innovation in the learning process that can be designed well, which is more user-centred, more interactive and has various user conveniences because it can be accessed anytime and anywhere. E-Learning is a way of utilizing digital technology for the learning process so that learning can be more open, distributed and flexible [10].

Learning media is a tool used to convey information that comes from trusted sources where educators provide this information to students so that it can facilitate the learning process. Using e-learning learning media means bringing a new innovation where students not only listen to the material provided by the teacher but they can see, hear and do something related to the material taught using technology [8]. It is important for this research to understand how multimedia technology influences learning through e-learning applications. By looking at the positive or negative effects, we can find the components that influence the successful use of multimedia technology in learning. The extent to which multimedia technology can enrich the learning experience and improve student achievement is the aim of this research. In this context, research will look at how multimedia technology interacts with the learning process in e-learning applications. It is hoped that the results of this research will provide educational policy makers, practitioners and researchers with a better understanding of how multimedia technology can help improve the quality of e-learning learning.

This research will focus on elements such as learning motivation, student engagement, and instructional effectiveness.

## 2. METHODS

To evaluate how multimedia technology affects students' understanding or to find components that influence the performance of multimedia technology in online learning. In this case, the researcher tries to describe the research results narratively by obtaining data from sources or informants, places and events, as well as research results documents created using purposive sampling techniques. To meet the needs of researchers, the samples taken were adjusted. Data collection methods involve observation and interviews. To ensure the validity of the data, the researcher used a validity test method combined with method triangulation. Interactive analysis is a data analysis method, which consists of three main stages: data collection and stage (1) data simplification, or appropriate data selection process. (2) Data presentation is a process in narrative form which aims to make research easier to understand. (3) Conclusions, verification and verification of researcher data are carried out so that the data collected is easily accessible and can truly be accounted for. The researcher carried out several research processes in this research, namely (1) preparation, which began with the researcher determining the title and arranging research administration; (2) data collection, which is carried out to obtain data that supports the problem formulation; and (3) preparing research reports, which are intended to make research findings more systematic.

## 3. RESULTS AND DISCUSSION

### *3.1 Students' understanding of the use of multimedia technology in e-learning*

The research results show that the use of multimedia technology in e-learning positively influences students' level of understanding. Interactive analysis found that media such as interactive simulations and learning videos can increase student engagement and retention of information. As data reduction shows, multimedia components enable differentiated presentation of material, make it easier to understand complex concepts, and increase the desire to learn.

### *3.2 Factors that Influence the Effectiveness of Multimedia Technology*

Some important factors that influence the effectiveness of multimedia technology in e-learning include technology accessibility, user interface design, and the availability of technical support. Triangulation analysis uses sources, observations and documentation data to identify these factors. Presenting the data in story form shows that students who are comfortable with multimedia interfaces tend to understand better.

### *3.3 Research Process*

Preparation, data collection, data analysis, and preparation of research reports are part of the research process. The data reduction process ensures that only important and relevant information is retained for subsequent analysis. The purpose of a research report is to explain the results systematically so that readers can understand them. The results of this study increase our understanding of how multimedia technology influences online learning. It is hoped that these results will help build better online learning strategies and support the use of multimedia technology in education.

### *3.4 Practical Implications and Recommendations*

From the results of this research, there are several practical implications that can be taken to increase the use of multimedia technology in e-learning. First, educational institutions can integrate interactive simulations and learning videos into their e-learning curriculum to increase student engagement and retention of information. Developing interesting and relevant multimedia content can also be a focus for maximizing the potential of online learning.

Next, it is important to pay attention to factors that influence the effectiveness of multimedia technology, such as technology accessibility, user interface design, and technical support. Educational institutions must ensure that students have adequate access to devices and internet connections, as well as provide the necessary technical support to minimize any technical barriers that may arise.

Recommendations can also be given to improve teacher training in designing and managing learning using multimedia technology. Teachers who are skilled in integrating multimedia technology can create more effective and engaging learning experiences for students.

## CONCLUSION

From this research, it can be concluded that the use of multimedia technology in e-learning applications has a positive impact on the learning process. Data analysis showed that multimedia features, such as interactive simulations and instructional videos, significantly increased students' levels of engagement, information retention, and conceptual understanding. The use of multimedia technology can also increase students' desire to learn, creating a more dynamic and motivating learning experience.

Critical factors influencing the effectiveness of multimedia technology involve technology accessibility, user interface design, and the availability of technical support. This research underscores the importance of ensuring that students have adequate access to devices and internet connections, as well as the need for ongoing technical support to minimize technical barriers.

We used a survey method to collect data from a number of users of e-learning applications with different multimedia features in this research. Multimedia technology has become an important part of e-learning platforms, allowing users to interact with learning materials in a more dynamic way. Research results show that when technology is used well, users feel more engaged, understand the material better, and are more satisfied with their learning experience.

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