



Digital Learning to Develop Teaching Media Applications

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ARTICLE INFO

Keywords: Digital Transformation, Learning Media, Multimedia

Received : 6, September

Revised : 16, October

Accepted: 18, November

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ABSTRACT

Digital transformation in learning media has become an increasingly relevant topic in the world of education, especially in the context of increasing student engagement and skills. Education plays a part in raising the caliber of HR-owned resources. The purpose of this study is to develop a teaching media application in the Multimedia Learning course. The research and development approach, or R&D, is the methodology employed in this process. Based on an industry-based development approach, research and development is conducted to create goods and procedures that are subsequently thoroughly tested in the field, assessed, and improved to satisfy specific standards for efficacy, quality, and standards. It has been demonstrated that using interactive multimedia-based learning materials in multimedia courses enhances students' conceptual understanding. The stages of developing this interactive learning media product are through validation tests and large group tests, and the final stage is implementation in learning. It may be said that students' interest in learning has enhanced when interactive learning materials are used in the Multimedia Learning course.

INTRODUCTION

Digital transformation has changed many aspects of our lives, including the world of education. Advances in information and communication technology have opened the door to changes in the way students learn and participate in the learning process. This development provides new opportunities to increase student engagement and skills in the context of education. According to Westerman et al. (2011), digital transformation is a type of organizational change that uses technology and business models to enhance performance while involving people, processes, strategies, and structures. The company's performance will be altered to be more effective and efficient in running its business as a result of this digital transformation, which will really spur a lot of innovation and creativity (Westerman et al., 2014). It is true that using radical technology—in this example, positive radical technology—can enhance performance or help the business reach its objectives (Westerman et al., 2014). The development of this technology increases the pressure to carry out digital transformation because competitors continue to adapt to new technologies (Firtgerald et al., 2013). That is the challenge that is faced so that in the process it will be full of considerations to be more careful than before. Many sectors have changed their paradigms so as not to be eroded by advances in digital technology. One of the sectors affected is the education sector, this sector is at the forefront of accepting the process and form of digital transformation. The development of science has given rise to technology, which with its progress and convenience has developed so rapidly. The progress of technological development has led to more efficient and effective human life activities. In fact, it is not only progress and convenience that are promised by technology but also change, increased productivity, popularity, accuracy and speed (Keengwe, J., & Kidd, T. T. ,2010). The learning process which is currently being driven to combine two aspects, both conventionally and with the use of technology, is what is called the blended learning process or can also be called digital learning. Education is currently dealing with a number of changes in every sphere of society. This is a result of globalization, which has affected the entire world, including Indonesia, and the quick advancement of science and technology. In light of these developments, the field of education must be able to provide significant contributions to the community by raising the caliber of outcomes and educational services (Reiser & Dempsey, 2018).

The learning process becomes tedious and monotonous when educational materials that have not been used in teaching and learning activities are used. Interactive multimedia, learning films, PowerPoint, and other types of learning materials are examples. Nass, C., and B. Reeves (2007). Because of this, instructors continue to use books and whiteboards as teaching tools instead of these learning resources. Furthermore, the majority of instructors continue to employ the traditional lecture style as their primary teaching strategy. This approach is no longer deemed suitable, which is regrettable given the abundance of hardware and software available in the information technology age for creating educational materials. (R. E. Mayer, 2020).

Interactive multimedia-based learning materials will offer a unique environment that can alter students' opinions about studying Introduction to Computers. The usage of multimedia by educators benefits them since it gives them the chance to create learning strategies that will enhance learning outcomes. Mayer, R. E., and Clark, R. C. (2016). It is anticipated that multimedia will help students study independently and assimilate lecture content more rapidly and effectively. Boring learning will become enjoyable when interactive multimedia-based learning materials are used in the process. The aforementioned description indicates that research and development activities are required to enhance students' comprehension of the learning process in multimedia learning courses. According to Sweller (2012), learning media is a tool that can support the teaching and learning process and serve to make the meaning of the message more clear so that learning objectives are met effectively.

METHODOLOGY

Research and development (R&D), specifically a research approach used to generate certain items and test the product's effectiveness, is the method employed (Sugiyono, 2010). The ADDIE development model, which Munir (2008) adopted, is the development process that is employed. The stages of product trials that are developed include expert validation, and large group trials. In order to compare learning that utilizes interactive learning media products with the same learning that does not use interactive learning media, multimedia products are applied in the learning process. The One-Shot Case investigation experimental design was used in the investigation.

RESEARCH RESULT

According to the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development process, this interactive learning medium was developed in five stages. Following the completion of the media product, product testing was conducted, which involved assessing the developed product with the goal of verifying all of its features and obtaining confirmation from media and material specialists regarding the product's viability.

Table 1. Recapitulation Results of Media Expert Assessments

No	Assessment Aspects	Expert 1	Expert 2	Score
1	Convenience	23	23	23
2	Aesthetics	14	18	16
3	Assessment Information	22	20	21
4	Media Integration	22	18	20
5	Artistic	40	40	40
6	Overall Function	20	20	20
	AMOUNT	141	139	140
	PERCENTAGE	96%	94%	$\Sigma=95\%$

From Table 1, it can be seen that the assessment by media experts on the product is categorized into 6 aspects of assessment, including ease, aesthetics, assessment information, media integration, artistic, overall function. According to the product feasibility level percentage interval, the media created is considered practicable as the overall percentage of the product's feasibility level was 96%.

The assessment by material experts on the product is categorized into two, namely regarding the feasibility of the content (coverage of material, cognitive content, relevance of basic competencies/curriculum, material accuracy) and presentation (presentation of learning, communicative and interactive, language aspects). In line with the percentage interval of the product feasibility level, the material expert assessment's overall results show a 94% percentage of the product feasibility level, which may be deemed extremely practical. Next is the implementation stage of interactive learning media. This stage aims to see student responses in learning by comparing the application of learning media with learning that does not use media. Twenty students in total who were enrolled in Electronic Engineering Education courses served as respondents for the study, which was carried out utilizing the experimental approach known as the One-Shot Case Study. With a questionnaire data collection technique in the form of a checklist consisting of 15 questions for questionnaires using learning media and 10 questions for questionnaires not using learning media, the following results were obtained:

Table 2. Student Assessment Recapitulation Results

No	Assessment Aspects	Assessment Score	Expected Score	Eligibility Percentage
1	Without Learning Media	725	955	76,5
2	Using Learning Media	655	745	88,3

According to statistics from Table 2, which compares student replies when learning with and without interactive learning media, the results for students who use interactive media are 76.5% and 88.3%, respectively. From these results there is an increase of 15% if learning is carried out using interactive learning media.

CONCLUSIONS AND RECOMMENDATIONS

Using the Research and Development technique, multiple research phases are required while creating learning multimedia. The ADDIE development model (Analysis, Design, Development, Implementation, Evaluation) is followed by the stages of multimedia development that are employed. The stages of developing interactive learning media products are through validation tests and large group tests, and the final stage is implementation in learning. When compared to learning that did not employ media, the results of implementing interactive learning materials in the classroom showed a 15% rise. It can be concluded that with learning using interactive learning media applied to the Multimedia Learning course, there is an increase in student interest in learning. It is anticipated that students' enthusiasm in learning will rise if this media is used in other practice-based courses.

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