Beevirale Multimedia Website for Distance Learning

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Abstract. In the world of education, schools and colleges are not allowed to conduct in-person or often offline classes at campuses during the COVID-19 pandemic. All teaching and learning processes should be done online from home. An alternative to this policy is to use distance learning (PJJ) methods. PJJ is now conducted online (on the network) through internet-based media. At the University, PJJ is conducted using a learning management system (LMS). The method for this research procedure used to determine the impact of web-based learning in drafting courses used the ADDIE model research approach and the result of student reaction to web-based learning media is that learning media are not just tools, they must be able to enhance students’ curiosity about the material to make it available to others. Learning can be done in a variety of ways, not just the traditional way. Due to the technology used, the media is accessed using only the Internet network, so users can access any device with an Internet network without consuming storage space on the device, WEB-based learning media related to the development of ICT-based learning media technology can be used as learning media for online and offline lectures.

1 Introduction

In 2019, the world was shocked by the coronavirus, often referred to as coronavirus disease 19 (COVID-19). This virus originated from Wuhan, China. The coronavirus is highly spreadable and symptoms in sick people are very common, such as: B. Influenza in general, i.e. cough, fever, dysgeusia, shortness of breath, etc., making it difficult to distinguish between the general illness and his COVID-19. The virus outbreak has spread so rapidly around the world, including Indonesia, that WHO has determined that COVID-19 is a pandemic. E-learning is the use of electronic technology to access educational programs via the Internet [1].

The use of technology and automation plays a key role in improving productivity [2]. These days, distance is no longer an obstacle to communication. You can send emails, make phone calls, send text messages over the Internet, and even make real-time video calls. With technology, many people are meeting with other people in different locations through video conferencing. One development in the use of videoconferencing is e-learning or distance learning. E-Learning has many advantages for both students and teachers. E-learning can help reduce the cost of education and can be effectively conducted within a reasonable time without geographical restrictions [3]. One of the advantages of e-learning is the easy access to learning materials from anywhere with an internet connection. [4] Several studies have found that despite its flexibility, simplicity, and cost-effectiveness, there are still many problems with e-learning. Researchers have found that the problem with e-learning is the limited ability of students’ perceptions of e-learning systems. [5]

Some problems can only be solved if students and students can use this e-learning system properly. [6] Students’ perceptions regarding the motivation to use e-learning due to the success of the learning process with e-learning is assisted by students’ acceptance of its actual use. [7] Further, the success of e-learning is seen by increasing students’ competencies, abilities, knowledge, user satisfaction, and behavioral intentions. [8] Based on studies on the development of an organizational model strategy through information systems in higher education, it shows a lack of adequate human resources in technology implementation. [9] The quality of education in Indonesia remains poor, below its neighbors.

According to a survey conducted by the International Student Assessment Program of the Organization for Economic Co-operation and Development, Indonesia ranked 72nd out of her 77 countries, scoring 371 in reading, 379 in mathematics and 396 in mathematics. Therefore, e-learning was speculated to be difficult for most middle school students in Indonesia in terms of student skills and knowledge. The spread of COVID-19 has changed the way the world works. Schools that had previously adopted a face-to-face offline method were forced to offer classes from home via the Internet.

Therefore, all Indonesian students must have supporting facilities to connect to the internet for e-learning. His e-learning system during COVID-19 in Indonesia is called Pembelajaran Jarak Jauh (PJJ). Based on a study by the Indonesian Child Protection Board (KPAI), PJJ is currently creating an educational gap...
between talented and disadvantaged groups in Indonesia. This is due to insufficient ability to purchase online credit, suitable computers or smartphones for distance learning, and the high cost of internet access, electricity, and other support facilities that do not match the parents’ income.

A KPAI survey of 246 primary respondents, 1,700 comparative students, and 602 teachers found that 73.2% of teachers found that giving assignments without interaction with students was ineffective, and that students said you don’t like learning. According to KPAI’s research, it is not easy to apply e-learning in secondary schools in Indonesia. Therefore, research on students’ behavioral intentions in e-learning systems in secondary schools is needed. This research was conducted in the Jakarta metropolitan area. A cost variable was added to the study considering the high cost of internet in Indonesia and the cost of living in Jakarta and Tangerang. Especially the Jakarta metropolitan area is facing a large number of people affected by layoffs due to the COVID-19 pandemic. Therefore, this study aimed to assess behavioral intentions of e-learning in secondary schools in Jakarta and Tangerang, Indonesia due to the impact of COVID-19.

2 Theoretical Analysis

Traditional educational practices do not influence students’ attitudes towards the Internet and computers. Notably, most students in higher education found that these web-based teaching practices had an impact on their outcomes [10]. In this phase, web-based learning becomes an important part of the communication tool in learning activities. Developing web-based learning materials for different learning methods is worth the effort, but definitely more time consuming, expensive, and more effective and efficient.

Web-based learning is a time-consuming and expensive task. Moreover, most of this learning development takes place at the local level, with similar themes being developed simultaneously in different learning institutions. There are two types of websites that he can optionally develop when creating a learning website: (1) A static website is defined as a website where the content created in HTML code is fixed or never changed, each visitor has the same view of information and only the webmaster is visible. Or the developer can update it.

Static website content. Generally, static websites are built using her HTML and CSS by developers who are skilled in programming and coding. Alternatively, you can use a static website generator such as Jekyll, Hexo, or Static Websites that doesn’t require a database because it only provides basic information like address and contact information. needs and other information. (2) A dynamic website is a website whose content is regularly updated. Dynamic websites display content from databases that are normally accessible only to webmasters or developers. This allows multiple users to update the website content without interrupting her website design.

Website-based Learning Media, without knowing the meaning of coding or going through coding, web-based learning media have already been created that are viable and useful for learning media development. You don’t need to know how to create web graphics, image editing knowledge, or basic graphic production skills to publish a website for drafting materials. The creation of images, text and graphics should be adapted for web delivery [11]. Media in this language literally means middle or intermediate and is used as a means of conveying messages or information in learning activities aimed at reaching information [12][13].

Please understand that learning media are tools that support teaching and learning activities and have the function of clarifying the information conveyed so that the teaching and learning process can achieve its objectives. Asynchronous technology allows participants to choose a time and place that is convenient for them. Table 1 shows how various digital multimedia technologies fit into these two structures.

<table>
<thead>
<tr>
<th>Technologies</th>
<th>Multimedia Technologies Adapted (From Bates and Poole. Effective Teaching [14])</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synchronous</td>
<td>Broadcasting (live) applications</td>
</tr>
<tr>
<td>Asynchronous</td>
<td>Communication (two-way) applications</td>
</tr>
<tr>
<td>Website</td>
<td>Multimedia (video, audio, text)</td>
</tr>
<tr>
<td>Chat</td>
<td>Multimedia clips</td>
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<tr>
<td>threaded forums</td>
<td>E-Mails</td>
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<tr>
<td>Discussion forums</td>
<td>Video conferencing</td>
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<tr>
<td>Voice over IP (VoIP)</td>
<td>Multimedia objects</td>
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</tbody>
</table>

Table 1 above lists the various media that can be used to deliver educational content. Text (print including graphics), audio (analog), video (analog), and digital multimedia. [14] Digital multimedia is a technology that enables the transmission of media. The main difference between the technologies used to transmit digital multimedia is the one-way technology of transmitting information from the producer to the receiver, but without the two-way interaction mechanism. I am here. Advances in communication technology have resulted in equal synchronous or asynchronous interactions between all participants. Synchronization technology works in real time. All parties must be present at the same time [15].

Multimedia-based Teaching Materials, Indonesian education experts say that the function of media and learning media can be called messaging technology [16]. It comes in the form of communication media such as print media, television, film, photography, recordings, projections and magazines. Used for physical and non-physical learning purposes. Based on the type of e-learning website and platform, multimedia materials are very useful to support distance learning. However, there are technical limitations such as hosting, servers that require stability, server security, and difficult coding processes. One of the various and interesting learning mediums for websites that are widely used and developed in both software and hardware form is the Beevirale website.

Beevirale website is a platform that include many menu for teaching and learning like self-development, community development, research, conference and virtual gallery. The learning media can be used appropriately according to the objectives, materials and performance indicators expected after the learning process. For learning activities in the digital age, which are not constrained by space and time constraints, ICT media technology is indispensable as a means of communicating messages. Transmission from the sender to the receiver allows the receiver to understand what is conveyed by the media, to more easily think, to arouse emotions, interests and attention. Media are tools, methods, and techniques that
can be used as a means of communication and interest between students and educators in the process of teaching and learning. It can be concluded that learning media have changed based on different ways of communication and relationship using technology in the digital age and his ICT, and different ways of learning. Schools facing major challenges need to make changes.

How can we prepare graduates of our courses and programs for an increasingly volatile, uncertain, complex and ambiguous future? What must we protect in our teaching methods (and institutions)?, what needs to change? Based on the industrial age rather than the digital age and the development of online collaborative learning (OCL) learning or online media websites, the infrastructure of schools to accommodate the necessary It succeeds when the teacher's skills are supported by the circumstances and conditions. [17]. What is the teacher's position in the OCL Knowledge Community, as shown in Figure 2 below? [18].

Figure 2. The position of the teacher in OCL learning (Harasim, 2017) [19]

Figure 2. Technology is not only a tool for expressing ideas and ideas from technical experts, but also the materials that can be developed in OCL learning [19]. Figure 1. Technology is not only a tool for expressing ideas and ideas from technical experts, but also the materials that can be developed in OCL learning. The Engineering Drawing learning medium is a teaching material intended to teach the fundamental engineering skills of image normalization, image functions, and image projection, embodying real-world machines into schemas and designing machine development innovations. can be used by humans to facilitate activity [20].

Mechanical technical drawing materials provided online ultimately require a laboratory, workshop or working studio. Internships, problem-based learning, case-based learning; project-based learning; on-demand-based learning. Collaborative learning (work or community based). The use of multimedia with student activities should be based on knowledge of the benefits and limitations that arise in the learning process.

Gerlach & Ely said that the use of multimedia with student activities should be based on an awareness of the strengths and limitations that arise in the learning process. Multimedia can anchor, manipulate, and distribute, but is hampered by verbal communication, misunderstanding, poor concentration, and often misinterpreted due to lack of explanation [21]. Therefore, multimedia learning presentations should be based on tutorials, exercises, multimedia simulations, experiments, and concept-building games. The use of multimedia in presented learning should be structured, interesting and relevant to the material presented. B. Imagery concepts, imagery rules and regulations needed to balance perceptions among students by designing creative multimedia according to their learning needs [21].

Online learning using the conceptual flow shown in Figure 3 below is conducted using websites, multimedia, or ICT technology for academic and conceptual development, where discussions are properly facilitated by the teacher. It needs to be organized and teachers provide the necessary support to enable development. Building New Ideas and Knowledge for Students. [22].

The development of technical drawing materials in the digital age, designed as shown in Figure 4 above, is based on the fact that broadcast/communication and synchronous/asynchronous are two distinct dimensions, with different placement of media technology in the matrix of images. It shows that it is in quadrant. Figure 3 below shows an illustrated learning medium that can also be applied to the online learning model known as the Internet as a vehicle for website development that can be used to provide learning materials.

Figure 4. Internet
Website. It should be noted that while website was the original spelling of the proper noun when referring to the World Wide Web, this variant has become rarely used, and website has become the standard spelling. A website (also written as website) is a collection of web pages and related content identified and published on a single web server.

Examples of well-known websites are Google, Facebook, Amazon, and Wikipedia are websites that are commonly used for activities on the internet. Website is a collection of web pages that are interrelated to provide certain information, which can be accessed via a domain name on the internet using a web browser application (Chrome, Firefox, etc.).

This website, which is already familiar in the ICT era, can be accessed via electronic devices such as computers, laptops or cell phones, where on the website there are various forms such as templates, views and designs that can be used for various needs related to online activities. Media. WEB is a combination of content including images, text or video wrapped in his one page stored on a computer server accessible over the internet. Every website has an access address commonly called a URL (Uniform Resource Locator).

3 Method

The research procedure used to determine the impact of web-based learning in drafting courses used the ADDIE model research approach. Data analyzed using data collection techniques with qualitative and quantitative methods used in the ADDIE model phase were obtained through interviews, observations, and questionnaires. Using the research model of the ADDIE approach developed, we can approach the design of learning systems using five development steps: analysis, design, development, implementation, and evaluation. This ADDIE model with situational scenarios is used to develop educational products [23].

Fig. 5. Model ADDIE

The research procedure using the ADDIE approach in Figure 4 for this study is based on the analysis of meaningful functioning according to the student's state: psychological and social functioning, as shown in Figure 5 below.

Analysis In this phase, a needs analysis is performed, problems (needs) are identified, and a task analysis is performed. Analysis of the characteristics or profiles of students learning craft drawing techniques for production, identifying gaps, identifying needs, and conducting in-depth task analysis based on their knowledge needs. Namely, students, learning goals and objectives, and online delivery media. Next, we analyze the components necessary to create a learning media structure. (2) student needs; (3) concept maps; (4) types of media to develop; (5) limitations found; analysis of strategies, and (8) selection of media for sensory operational functions and psychology (verbal, visual, tactile, auditory).

Fig. 6. Procedure of product development

The design process involves formulating SMAR learning objectives (specific, measurable, applicable, realistic), determining learning strategies by implementing learning models (method and media combinations) that are most relevant to learning resources, Make the environment clear and detailed. Documents (blueprints). The obtained data will be provided in the form of lecture implementation plan (RPP) on syllabuses and blueprints for the purpose of providing guidelines for creating teaching materials to be incorporated into product development.

Development The process of realizing a design or draft that you develop in a web-based e-learning drafting course. Product development is performed by analyzing system users and those accessing data by creating categories, organizing content, setting themes, selecting and changing views. Tasks for uploading materials, assigning tasks, evaluating tasks, and monitoring learning progress. Implementation of the developed learning system was conducted through a direct media test and a performance test for drafting course students. Evaluation His two phases of data analysis were carried out based on the results of the experiments conducted during the implementation phase. Qualitative data analysis of responses to the quality of learning media and quantitative assessment of respondents in the form of questionnaire numbers. About the process that takes place in the learning activity. The study population was conducted on undergraduates using a sample of 30 users. Sampling techniques in the form of media tests are required for those conducting courses. Explore the impact of learning media on all students taking a course.

4 Results and discussions

There are strong theoretical reasons for the use of comics in this manner in educational settings. The “Dual coding” theory proposes that both a visual and a verbal code contribute to cognitive processing and
You can learn independently according to your own abilities and interests, and overcome the limitations of senses, space, and time according to the learning environment from the conditions and situations that exist in a given place. Such situations can be observed in online learning activities. Beevirale's technology website as a platform succeeded in presenting two-way communication technology evenly among all participants. This can be synchronous or asynchronous.

The Zoom or Microsoft teams are asynchronously independent of each other, which can be done via his WhatsGroup/forum of communication media. A technical description of the structure of a projected form component serves as a precise descriptive language for a physical object, a graphical language compared to using pencil and paper to sketch his image. Increase. The function of learning media can clarify the presentation of messages and information, symbols, projections and real objects, accelerating and enhancing the process and value of learning.

Beevirale website of learning materials using a website that begins with data collection, analysis of the quality of facilities, data obtained stating that the development of teaching materials via the internet is still constrained in aspects such as difficult to access with a slow internet network, open applications, audio on video so that it is not large, and so on before instrument testing. At the stage of developing teaching materials, it is carried out in stages with the ADDIE development model by applying the first step, namely Analysis, which is a stage that includes activities to collect the initial information needed in the process of developing WEB-based learning media.

After discussing with the lecturer and the results of interviews with several students, in any courses, projection material is one of the materials that requires interactive learning media. Needs analysis in making the resulting learning media is carried out by not consuming the smartphone or device storage used by the user, because it is considered burdensome if there is no storage left. Needs analysis in the first stage of designing material and content, the material contained in this WEB-based learning media includes understanding, tool layout, types of tools, and how to use tools. The materials in this web-based learning medium are presented in text, image, and video formats. And in the product design stage, the media design is done in storyboard form, which is the basis for designing the user interface of this web-based learning medium.

A series of tools for creating web-based learning media, including creating background images, opening media, creating opening menus, creating menu sets, inputting materials and content, and creating learning videos for verification of research equipment. develop the process. After expert judgment, this web-based learning medium was rated as 'very suitable' and pointed out in the form of comments and suggestions for improvement to the next level. The quality of the materials designed in the web-based learning media has been designed according to the results of the revised evaluation, and the materials that have been put into production can be seen in the following figure:
The result of student reaction to web-based learning media is that learning media are not just tools, they must be able to enhance students' curiosity about the material to make it available to others. This is consistent with opinion that in this case, students are presented with learning media that can be used on any device, especially smartphones. This web-based learning medium is easily accessible and organized so that it doesn’t take up your smartphone's storage space.

Consistent with, summing up the learning methods that students are likely to be interested in, he said one of them is the need for easy access to media available on students' smartphones. [24] All you need is an Internet network to access this web-based learning medium, and it’s extremely easy to use. Learn more about this source code. Source text is required to receive additional translation information. Submit your feedback. side panel.

The use of web-based learning media has been communicated that the media articulate visual messages, overcome students' passivity, and overcome spatial, temporal, and sensory limitations is consistent with the ability to overcome and provide the same stimuli. It can also equate students' perceptions of the content of the lesson. This web-based learning medium is one of the visually applicable learning mediums for both online and offline learning. The ADDIE development method is the implementation phase or implementation phase of the developed learning media. A web-based learning medium has been piloted for students of the Online Mechanical Engineering Education 2020 course. Ratings are performed using a Google Form to submit ratings for the media you use. The final stage of the ADDIE method is evaluation.

Evaluation is the phase of analyzing the data generated by each phase of the ADDIE method. In this study, the assessment conducted was a formative assessment involving data processing of student responses. The results obtained are classified as "very good". Additionally, descriptive data of suggestions and comments generated from expert judgments and student responses is processed as a reference for product revisions aimed at improving this web-based learning medium. The results of student responses to web-based learning media are consistent with his opinion that learning media are not just tools, but that learning media should be able to enhance students' curiosity about the material. I'm here.

We can offer a variety of experiences that are not easily obtained and offer more diverse ways to learn. Students are then provided with learning media that can be used on any device, especially smartphones. This web-based learning medium is easily accessible and organized so that it doesn't take up your smartphone's storage space. Consistent with, one of these is the need for easy access to media available on students' smartphones when compiling learning strategies that are likely to be of great interest to them. Is [24]. This web-based learning medium is extremely easy to use, all you need is access to an internet network. Learn more about this source code. Source code is required to obtain additional translation information. Submit your input. side panel. The use of web-based learning media is consistent with that conveyed [25].

This means that media can articulate visual messages, overcome the passive nature of students, transcend spatial, temporal, and sensory limitations, and provide the same stimulation. You can adjust the student's perception of the lesson content. However, these WEB-based learning media can also belong to learning media that are visually applied to online and offline learning. This learning medium has been created according to the above general principles.

This is to ensure that the learning media developed have viable media principles and qualities. While these existing methods may not work effectively, there is growing interest among educators and researchers to introduce more useful methods to enhance the teaching and learning experience. In addition to the prevalence of digital technology in recent years, the integration of technology is influencing the way we learn. The challenge for students is that the transition from traditional educational systems to virtual formats is critical. These learning media are created using the general principles above.

This is to ensure that the learning media developed have implementable media principles and qualities. Although sometimes these existing methods do not work effectively, there is a growing interest among educators and researchers to introduce more useful methods to enhance the teaching and learning experience. Along with the rise of digital technology in recent years, the integration of technology has influenced the way or method in the learning process. The challenge faced by students is that changing the conventional education system to a virtual format takes a very long time. The use of technology in learning media is highly recommended for development in the field of engineering education. Based on these results, this WEB-based learning media will be able to display images from software that can increase interest, especially interest in independent learning.
5 Conclusion

Based on research results on the development of WEB-based learning media for drafting courses, due diligence review by experts and feedback on learning media, the ADDIE approach (analysis, design, development, implementation, evaluation) is an alternative learning media course. Based on the further the process development of interactive multimedia-based teaching materials in introductory courses of administrative and management sciences using research and research development containing basic competencies, materials, practice questions in the form of multiple choice and case studies for students to aid self-learning during distance learning during the pandemic covid-19, particularly in the Office Administration Education Study Program. It is rated "very good" so that it can be used as Materials presented via the Internet can be communicated in an interesting way and can increase the motivation to learn and interest in learning a drawing course [25]. WEB-based learning media related to the development of ICT-based learning media technology can be used as learning media for online and offline lectures. Simply having a gadget in your possession and connected to the internet makes it easy to access this media.

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References


