Development of Video Tutorial Media in the Computer Networking Course at Indonesia Christian University Toraja

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Abstract

This research analyzes the problem of lack of literacy and references for practicum material that students can use to make it easier for them in practicum, making students overwhelmed and having difficulty completing the project assignments given. To answer the challenges of the digitalization 5.0 era and make things easier for students, innovations are needed in learning Computer Networks courses, the innovation of which is in the form of video tutorial media which can motivate students to have more fun learning and make it easier for students to absorb knowledge and skills in the field of Computer Networks. This research method uses a type of research and development (R & D) Instructional Development Institute (IDI) development model using qualitative data analysis. This research will be carried out at the Indonesian Christian University of Toraja with students from the Educational Technology Study Program as research subjects. The results of the development in this research are video tutorial media products with a duration of ± 7 minutes which are packaged in the form of teaching materials that are ready to be used. The validation level of the video tutorial media developed is based on material and media experts, is in the valid category, and is suitable for testing.

Keywords: Computer Networks, Video Tutorials, Educational Technology

Introduction

The main indicator for a university to achieve success is the quality of its graduates. A country's success in facing the digitalization 5.0 era is closely related to innovation created by quality resources so universities must be able to answer the challenges of facing technological advances and competition in the world of work in the era of globalization.

The Computer Networks course is one of the courses in the Educational Technology Study Program, Faculty of Teacher Training and Education, semester 4. This course weighs 3 credits. In this course, students are faced with material that requires them to carry out practical work on creating network topologies. After taking this course, students are expected to have skilled competency in creating Network Topology flow schemes.

The problem of lack of literacy and references for practicum materials that students can use to make it easier for them in practicum makes students overwhelmed and have difficulty completing the project assignments given. In essence, students are happier if before being directed to do an assignment, they are given input and direction and given access facilities to make it easier for them to understand the content of the material being taught before students finally do the assignment.

The benefits of using video tutorial media in learning Computer Networks courses are as follows: (1) the material is easy to understand because the concepts presented are planned to make things easier

for students and are systematic, (2) learning is faster and more interesting because it is presented systematically so it does not cause boredom because it is equipped with moving pictures and accompanying music, (3) this interactive learning media can also be used as an alternative individual learning media.

Video is a type of media known to society today that is used as a learning medium. Video is a tool or media that can show simulations of real objects. [1] said that video is a display of moving images accompanied by sound.

Dawyer in [2] revealed that videos can capture 94% of the channels for messages or information entering the human soul through the eyes and ears and can make people, in general, remember 50% of what they see and hear from program broadcasts.

Daryanto (2016: 72) explains that the tutorial presentation format is multimedia learning in which the delivery of the material is carried out in a tutorial manner, just like a tutorial carried out by a teacher or instructor.
Rusman (2014: 300) adds that tutorials are learning guidance in the form of providing direction, assistance, guidance, and motivation so that students learn efficiently and effectively.

Video tutorials are a learning video model that is suitable for teaching various kinds of practical learning [3]. Based on the definitions explained above, it can be concluded that video tutorials are displays of moving images or human activities that provide directions for teaching practice so that the message conveyed can be easily received by listeners.

Video tutorials/training can be produced to explain in detail a certain process, how to carry out certain tasks, how to practice, and so on to make the lecturers' tasks easier. In the video tutorial production process, information can be displayed in a combination of various forms (video shooting, graphics, animation, narration, and text), which allows the information to be optimally absorbed by the audience. An example is the material for creating/designing computer network topologies. That way it will be easier for students to practice the tasks given.

Method

The type of research used is development research or what is usually called Research and Development (R & D) using the Instructional Development Institute (IDI) development model. According to [4], IDI applies the principles of a systems approach which includes three stages, namely discovery (define) or needs analysis, development (develop), and evaluation (evaluate). This research will be carried out at the Indonesian Christian University of Toraja with the research subjects being students in the fourth (fourth) semester of the Educational Technology Study Program.

This research process was carried out with the first stage of analyzing the need for developing video tutorial media on Network Topology material. The second stage is designing learning media. The third stage carries out product validation, and the fourth stage carries out revisions and feasibility tests based on analysis of validation data from material experts and learning design experts until learning media is produced that is suitable for use according to the characteristics of the course and students as users. The final stage processes and analyzes the data that has been obtained. The data analysis used is qualitative.

Result and Discussion

The completed video tutorial media will undergo a feasibility test in the form of a formative evaluation, namely validation of the material and learning media by experts before being tested in the classroom. This stage is one part of the development stage which aims to produce video tutorial media that has been revised based on input from experts.

Validation by learning material experts to determine the validity of the material in terms of content and materials.

Meanwhile, validation of learning film media is carried out by media experts to determine the validity of the media in terms of media appearance. The expert validators involved include experts in the field of material/content and learning media experts. Learning material experts and media experts consist of two lecturers, namely a lecturer from the Faculty of Educational Technology and a lecturer from the Faculty of Information Engineering at the Indonesian Christian University of Toraja.

The following are the results of expert validation of the video tutorial material and media developed in the Computer Networks course. According to the material expert's assessment, Network Topology material which is packaged in the form of video tutorial media is suitable for being made into learning media. Based on validation from experts, the video tutorial material was developed by giving a score to each aspect assessed with a score of 1-5. The material expert assessment instrument includes content and material aspects.

Based on the validator assessment obtained, it shows that the learning material contained in the media is in the valid category and does not need to be revised, which means that the material is by the learning objectives to be achieved. The material expert then responded that the video tutorial media in the Computer Networks course could be used and was considered adequate.

The results of the media validator assessment showed that the level of achievement of the learning media validation results was obtained, which means that the video tutorial media can be used and revised according to the media validator's suggestions.

In the media expert validation process, 8 aspects need to be assessed. However, in the validation process with experts, 2 aspects had the lowest score, namely 4 (four). In the aspect of message clarity and text composition used in the

media. And this became a revision of the research before finally being tested on students. So that when validation is carried out, the validator only provides suggestions for further research or media development, so that the use of text composition pays more attention to each other.

The researcher has included and followed the validator's directions, namely revising the composition of the text used in the video tutorial media being developed. However, apart from the assessment given in the form of a checklist, a comments column is also provided.

The advice given by the validator is to write instructions on the video using a medium size only. And conclude that this video tutorial media is suitable to be used/tried with revisions according to suggestions.

The final stage of research into the development of video tutorial media is testing video tutorial media products that have been developed in learning activities. Evaluation to determine feasibility by looking at student and teacher responses and to find out whether this video tutorial media is practical to use in learning activities.

Based on the results of 33 students' responses from the Educational Technology Study Program in the Computer Networks course, the following research results regarding the development of video tutorial media were obtained:
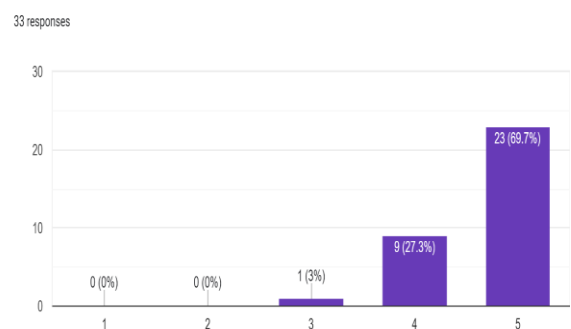

Figure 4.1 Results of Student Responses regarding Tutorial Video Media in

Computer Networks Courses Packaged in the Form of Accessible Learning Video Files

Figure 4.1 above, it is shows that as many as 69.7% of Educational Technology students assume "Strongly Agree" regarding the Video Tutorial Media media in the Computer Networks course which is easy to package. This is due to the need for developing media that can be used at any time and will make it easier for students without needing network facilities to be able to access this video. They can directly access it via cell phone or laptop.
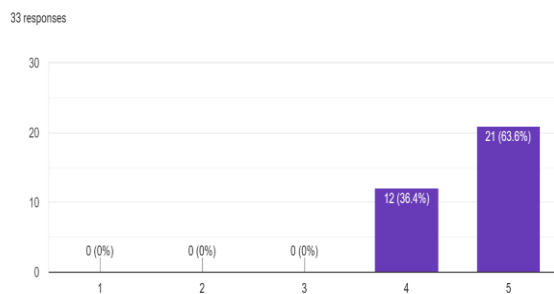
Figure 4.2 Results of Student Responses Regarding Instructions for Using Video Tutorial Media in the Clear Computer Networks Course

In Figure 4.2 above, it is shown that as many as 63.6% of Educational Technology students assume "Strongly Agree" that the instructions for using video tutorial media in the Computer Networks course are clear. This shows that they can make good use of this video tutorial. Because the instructions for use are well provided and very easy to understand.
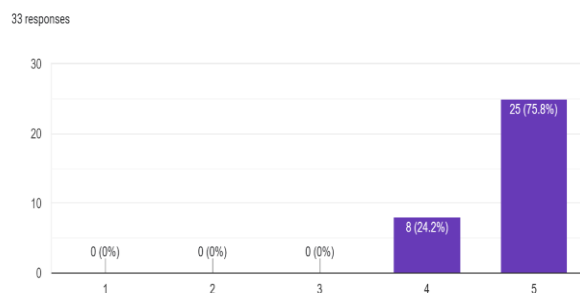

Figure 4.3 Results of Student Responses Regarding Tutorial Video Media Helping in the Learning Process

In Figure 4.3 above, it is shown that as many as 75.8% of educational technology students assume "Strongly Agree" that this video tutorial media can help in the learning process. So far, the learning process is sometimes only supported by reading books, while in practice students need teaching materials that can make it easier for them to understand the content of the learning material. Of course, this is in the context of developing video tutorial learning media in the Computer Networks course.
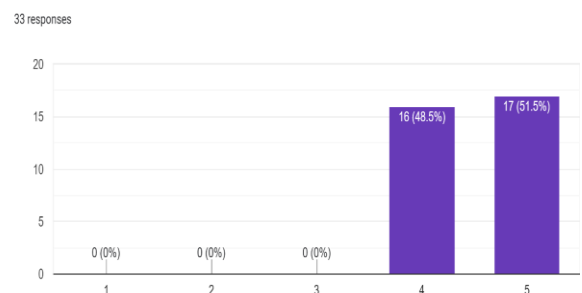

Figure 4.4 Results of Student Responses regarding the Material Contained in the Clear Tutorial Video Media

Figure 4.4 above, it is shows that as many as 51.5% of Educational Technology students assume "Strongly Agree" regarding the material contained in clear tutorial video media. Sometimes there are problems with the presentation of material that is not clear, resulting in ambiguous meaning when used by some students. However, it is different from this video tutorial media because the material prepared follows the subject matter and is very clear so that students can easily understand the content of the material explained in the video tutorial media.
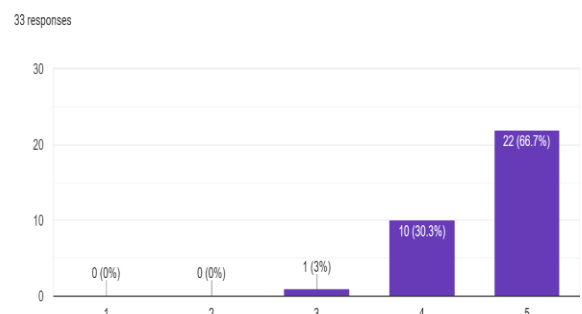
Figure 4.5 Results of student responses regarding the video tutorial media displayed according to the material

Figure 4.5 above, it is shows that as many as 66.7% of Educational Technology students assume "Strongly Agree" regarding the video tutorial media displayed following the material. It often happens in learning that students have difficulty finding teaching materials that suit the material because the media displayed by the lecturer does not match the content of the material. Therefore, this media can be used well because the material in it was developed following the needs of teaching materials for making Network Topology.
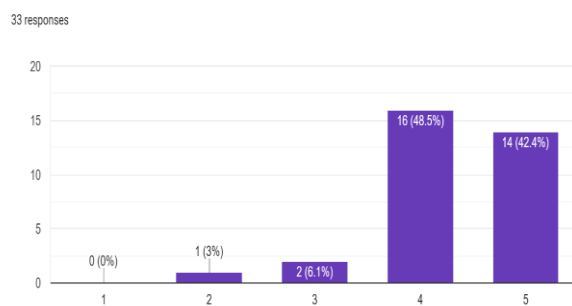

Figure 4.6 Results of Student Responses regarding the Size and Type of Font Used as an Easy-to-Read Translator

In Figure 4.6 above, it is shown that as many as 48.5% of Educational Technology students assume "Agree" regarding the use of font size and type as an easy-to-read translator in video tutorials. This proves that it is important to know the things that need to be considered when creating learning media. So that it can be used by anyone who uses it. Likewise in choosing the size and type of letters to make it easier for users to access the required learning media.

However, in Figure 4.6 above, there is 1 student respondent who assumes "Not enough" regarding the use of font size and type in video tutorial media. This will help researchers in subsequent revisions when creating video tutorial media in learning to

pay more attention to the choice of font size and type when creating similar media.

Based on the research results from the responses of Educational Technology students described above, it is known that the development of video tutorial media is quite helpful in the learning process, especially in Computer Networks courses. Practicality in access and ease of use is one of the attractions of this video tutorial media.

This video tutorial media helps students in practical learning which specializes in media that can be seen directly so that they can be followed and serve as guidance for students. Additionally, according to [5] One of the learning media that can be used to stimulate students' cognitive, affective, and psychomotor thinking skills is video.

Conclusion

Based on the results of previous research and development, it can be concluded that the development of this video tutorial media produces a product in the form of teaching materials containing material about Network Topology with a duration of ±7 minutes which can be used for Educational Technology students at the Indonesian Christian University of Toraja. The purpose of this video tutorial media is to make it easier for students or lecturers to present material on making a network topology so that students can easily apply the steps for making a network topology.

The level of validation of the video tutorial media developed is based on media and material experts, the media is valid and suitable for testing. Meanwhile, the level of practicality of this video tutorial media can be known after it is tested on students. The video tutorial media in the Computer Networks course is practically used by Educational Technology students.

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Curriculum Vita

Anna Pertiwi, born on August 12 1993 in Sidomukti, North Luwu (South Sulawesi). The second of three children of Pastari and Agustina. The author started studying Kindergarten (1998-1999), Elementary School (1999-2005), Middle School (2005-2008), and High School (2008-2011). In 2016 he completed studies in the Educational Technology Study Program at Muhammadiyah University of Makassar.

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In 2021, the author was appointed as a permanent lecturer at the Indonesian Christian University of Toraja in the Bachelor of Educational Technology Study Program and currently teaches several courses including Learning Media, Computer Networks, Learning Resource Management, Basic Principles of Databases, Educational Research Methodology, Research Proposal Seminar, Learning System Design Model, Visual Communication, and Citizenship Education.