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Developing Video Tutorial-Based Learning Media to Enhance Users' Understanding of Spada UNS

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Abstract: *This study aims to develop video tutorial-based learning media to increase the Online Learning System (Spada) use at Universitas Sebelas Maret, Surakarta. This media development was based on feedback, suggestions, and preliminary survey findings, showing that 24% of the 80 respondents who utilized Spada UNS said there were not enough tutorials for the software. The research method employed was research development (R&D) with development procedures referring to the ADDIE model (Analysis, Design, Development, Implementation, and Evaluations) developed by Dick and Carry. The feasibility of learning media was assessed by media and material experts who were members of the PPTIuP LPPMP UNS peer group. Data collection instruments encompassed questionnaires, literature studies, documentation, and interviews. Data analysis results from the feasibility test then used the Likert scale. On the https://spada.uns.ac.id page, under the "Video Tutorial" menu, are links to the outcomes of the learning media development in the form of video tutorials on utilizing Spada UNS. The video tutorial passed the "Very Good" criteria and is feasible to use as a learning medium to improve the knowledge of Spada UNS users, according to the feasibility test findings on the video tutorial as a whole from the three elements assessed, which earned a percentage of 90%.*

Keywords: *tutorial, SPADA, e-Learning, ADDIE*

Abstrak: Penelitian ini bertujuan untuk mengembangkan media pembelajaran berbasis video tutorial sebagai upaya untuk meningkatkan pemanfaatan Sistem Pembelajaran Daring (Spada) di lingkungan Universitas Sebelas Maret Surakarta. Pengembangan media ini berdasarkan masukan dan saran serta hasil survey pendahuluan yang memberikan data 24% dari 80 responden pengguna Spada UNS menyatakan tutorial penggunaan Spada masih kurang. Metode penelitian yang digunakan adalah penelitian pengembangan (R & D) dengan prosedur pengembangan mengacu pada model ADDIE (Analysis, Design, Development, Implementation and Evaluations) yang dikembangkan oleh Dick and Carry. Kelayakan media pembelajaran dinilai oleh ahli media dan ahli materi yang tergabung dalam peer Group PPTIuP LPPMP UNS. Instrumen pengumpulan data meliputi angket, studi literatur, dokumentasi dan wawancara. Analisis data hasil uji kelayakan menggunakan skala likert. Hasil pengembangan media pembelajaran berupa video tutorial penggunaan Spada UNS di tautkan pada laman https://spada.uns.ac.id di menu “Video Tutorial”. Hasil uji kelayakan terhadap video tutorial secara keseluruhan dari tiga aspek yang diuji memperoleh persentasi sebesar 90% yang berarti mendapat kriteria “Sangat Baik” dan layak untuk diimplementasikan sebagai media pembelajaran guna meningkatkan pemahaman pengguna Spada UNS.

Kata Kunci: Media Pembelajaran, Video Tutorial, SPADA, MBKM

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INTRODUCTION

Changes are always brought about by implementing learning in higher education institutions due to advances in science and technology, particularly information and communication technology. The changes are unquestionably required to improve the educational system per student needs. Learning success can be attained by maximizing already-existing elements, one of which is using learning media that can serve as a learning process intermediary (Williyana et al., 2018). According to Criticos, "the media is one of the components of communication, i.e., as a messenger from communicator to the communicant" (Wirasasmita & Putra, 2018). Meanwhile, learning is a process of creating an environment so that the learning process occurs and can change students' behavior(Hafizah, 2020). As a result, it can be said that learning media provides a way for teachers and students to communicate in a classroom setting that can enhance learning more effectively and efficiently.

The learning media development aims to increase the quality and quantity of understanding and deepen each student's teaching material (Juanda & Hendriyani, 2022). Currently, creative and innovative learning media are widely used by educators for the teaching and learning process in formal education, both in schools and in higher education institutions and informal education for workshops and independent training. Conversely, the lack of variety of learning media in the teaching and learning process impacts students' understanding of a subject matter (Williyana et al., 2018). Learning media can also be developed by utilizing existing information and communication technology, such as video tutorial-based learning media.

Video tutorials are a series of live images a teacher shows containing learning messages to assist in understanding a learning material and as guidance or additional teaching material to a small group of study participants (Wirasasmita & Putra, 2018). Several reasons for using video as a learning medium are as follows: 1) efficient use of class time; 2) more active learning opportunities for students; 3) videos can help explain the material clearly; 4) the learning style of each individual is different so that, with videos, all of these aspects are fulfilled; 5) reducing the burden on educators to use the lecture model in the teaching and learning process (Agustini & Gede Ngarti, 2020).

In this case, the Online Learning System (SPADA) UNS has been developed as a medium for distance learning since before the COVID-19 pandemic. The Online Learning System is a learning system without face-to-face meetings between lecturers and students but is carried out online using the help of an internet network (Herlina et al., 2020). SPADA UNS is managed by the Information Technology Development Center for Learning (PPTIuP), Institute for Education Quality Development and Assurance (LPPMP), UNS. Spada is still used as a learning supplement and for lecture materials in collaboration with other institutions to support the Freedom to Learn-Independent Campus (MBKM) program. However, due to educators' and students' diverse digital literacy abilities, Spada UNS has not been maximized. Thus, PPTIuP LPPMP UNS, as the institution responsible for the course of online learning at UNS, has made various efforts to increase the utilization of SPADA UNS with face-to-face training, road shows to each faculty, video conferences in the form of webinars, making electronic manuals in pdf form, creating web-based tutorials, and providing direct consulting services to users. Nevertheless, the efforts made by LPPMP to increase the number of users using SPADA have not met expectations. Many courses made are not per the provisions of the online learning concept, and many are not active.

Based on a survey of SPADA users, 24% of respondents said that one of the challenges to utilizing Spada UNS was the lack of tutorials that may help them. Several other obstacles that could be identified included: 1) users could not quickly search for certain topics in the provided guidebook; 2)

tutorials on using SPADA that covered courses per topic were not sufficient; 3) users felt unclear in understanding tutorials in the form of text and images since they were less interactive; 4) lack of direct Spada training; 5) video-based tutorials have not been available yet.

For this reason, this study aims to overcome one of the abovementioned issues by developing learning media for using Spada UNS based on video tutorials. Previously, Syarifah Hafizah's (2020) research results stated that using video in learning is more effective and can improve student learning outcomes and encourage students to be active (Hafizah, 2020). The results of another study conducted by Syahrul Ihsan & Ahyanuardi (2021) also revealed that video-based learning media is a critical component for stimulating the mind and encouraging the learning process. The validity test results showed that the video-based learning media developed is valid and feasible for learning(Ihsan & Abyanuardi, 2021). In addition, Ketut Agustini & Jero Gede Ngarti (2020) asserted that learning videos positively impacted student learning activities, such as material demonstrations, motivation, tutorials, and time effectiveness, so video-based learning media helps students to facilitate the teaching and learning process, where it is easier for educators to convey learning material (Agustini & Gede Ngarti, 2020). It was also stated by Van Der Meij, who was quoted by Lamontagne, that video tutorials are now widely used in user training as they are an easy and cost-efficient method to execute user training (Lamontagne et al., 2021).

Departing from the findings of these three studies, it can be said that video tutorial-based learning materials are feasible, efficient, and useful for both formal and informal education. They can also help students understand concepts when they must conduct independent studies. With the video tutorial-based learning media on the use of SPADA UNS, it is expected that it will provide options for Spada users to study Spada independently and in-depth, thereby increasing Spada UNS users and supporting the Freedom to Learn-Independent Campus program, integrated with the Ministry of Education and Culture's SPADA and the Indonesia Cyber Education Institute (ICE-I).

RESEARCH METHODS

The research method used was Research and Development (R&D). According to Sugiyono, development research produces certain products and scientifically tests the effectiveness of these products (Sugiyono, 2013; Benny Herlandy et al., 2019). This study aimed to develop learning media in the form of video tutorials that can be used as training media for using Spada UNS independently and can be accessed via the internet. Further, the learning media development model used was the ADDIE model developed by Dick and Carry. This media development model consists of five stages: analysis, design, development, implementation, and evaluation (Tegeh, I Made; Jampel, 2015). The advantage of developing media using the ADDIE model is that it allows evaluation of each stage of product development activity. The existence of an evaluation stage at each stage will minimize errors or product deficiencies at the final stage of development (Dadi et al., 2019).

The scheme or process flow for developing video tutorial-based learning media can be seen in Figure 1:

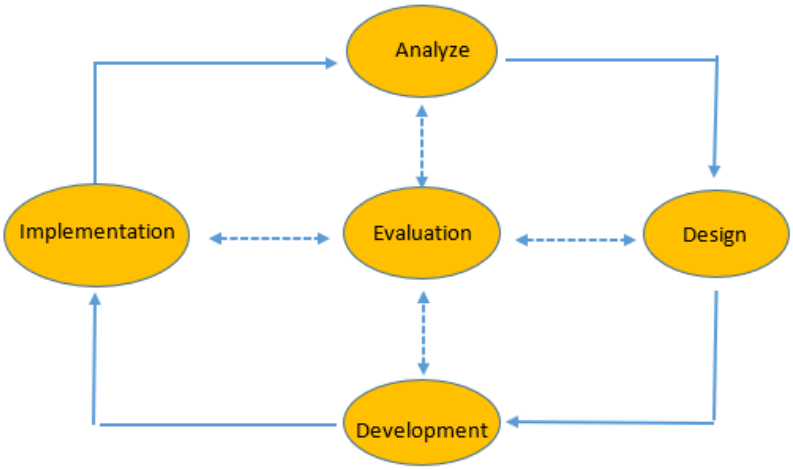

Figure 1. Stages of the ADDIE Model

This study used descriptive analysis techniques. The data needed were qualitative and quantitative data. Qualitative data were obtained from suggestions, responses, criticisms, and input from experts who were the peer group members of the Information Technology Development Center for Learning (PPTIuP), Institute for Education Quality Development and Assurance (LPPMP), UNS. Meanwhile, quantitative data were gained through the validation questionnaire results (Dadi et al., 2019). The validation questionnaire contained media assessment indicators (Ihsan & Hamka, 2021). This validation questionnaire employed a Likert scale of 1 to 5, with the criteria being very good, good, less good, not good, and very not good (Aziz Alimul Hidayat, 2021). Usually, the Likert scale is used to measure attitudes, opinions, and perceptions of a person or group of people about media or social phenomena (Dr. Sudarsono, 2016).

Then, the data analysis technique used was the average calculation technique (Dadi et al., 2019). The calculation of data obtained through a questionnaire to users or media experts and material experts employed the formula: $P = \frac{f}{N} x100\%$

P= Average percentage

f= Frequency

N= The number of respondents

The percentage calculated using the formula above was utilized to determine the feasibility level of video tutorials (Dewi et al., 2022). The criteria for the feasibility level of video tutorials can be seen in Table 1.

Table 1. Criteria for feasibility level

Percentage	Criteria	Description
81 % - 100 %	Very good	Very feasible
61 % - 80 %	Good	Feasible
41 % - 60 %	Not good	Less feasible
21 % - 40 %	Not good	Not feasible
0 % - 20 %	Very not good	Very not feasible

RESULTS AND DISCUSSION

The results of this study were video tutorial-based learning media using Spada UNS in MP4 format, which can be played on various devices, such as smartphones, laptops, tablets, PCs, or other devices. With this video tutorial, it is hoped that it will make it easier for users to train on using Spada independently. Self-training can be done anytime and anywhere according to the user's needs.

Needs Analysis

Before moving on to the next level, the needs analysis for creating video tutorial-based learning media was completed. A needs analysis was conducted through a preliminary investigation, including literature reviews, FGDs, and field studies. A literature study was done by observing the development of Spada UNS users. While this was happening, field investigations were being performed to learn more about UNS's online learning environment, particularly during the COVID-19 pandemic. The earlier research findings from the COVID-19 pandemic demonstrated the general skills of Spada users; of 80 lecturers, 36% felt they were not competent enough.

Regarding the ability of lecturers to create and present lecture material online at Spada, 37% stated it was not good, while 63% said it was good. According to the perspectives obtained, some still believed there needed to be more widespread outreach and training, while some felt there were not enough tutorials. The lack of tutorials that could assist lecturers in using Spada caused the ability to provide lecture material online at Spada also not good (Ngadimin et al., 2022).

Meanwhile, the FGD (Forum Group Discussion) was carried out together with peer group members from the Information Technology Development Center for Learning (PPTIuP), Institute for Education Quality Development and Assurance (LPPMP), UNS, and SPADA users to hold discussions. Discussions at this stage were done to identify deficiencies in the existing Spada usage guide and seek solutions by developing Spada user manuals according to user needs.

Media Design and Development

After obtaining the necessary development needs data, the next step was to design and develop the media. At this stage, media design and development steps were carried out, which included 1) pre-production, 2) production, and 3) post-production (Arikunto, 2021; Ihsan & Hamka, 2021).

Pre-production

Video tutorial pre-production is the design stage, which includes preparing materials and production tools. In this study, video tutorial materials were made under the results of a needs analysis by considering input from Spada users. Some video tutorial materials that users needed are 1) how to make virtual courses or classes, 2) how to add resources and completion, 3) how to create discussion forums, 4) how to make assignments, 5) how to make quizzes with AIKEN, and 6) how to make a quiz with exam view. Then, the final result of preparing the video material was a storyboard. A storyboard is a series of words or diagrams containing an outline of the storyline from start to finish, which is made in its entirety, detail, and completeness, showing the sequence of views that will become a short story (Winarni et al., 2020). A storyboard greatly determines the smooth process of producing learning media (Muka et al., 2021). Therefore, storyboards must be prepared thoroughly, in detail, and sequentially to facilitate the production or shooting.

After preparing the storyboards for each video tutorial was complete, the next step was to prepare other tools supporting the smooth production process. The tools that should be prepared were the hardware and software, making a video shooting schedule, and preparing the studio and production crew (Binanto, 2013). The hardware that should be prepared was a camera or camcorder, studio with green screen, PC or laptop, light shoot or spotlight, microphone, and monitor.

Production

At this stage, the researchers carried out the process of making a video, which included taking sound, pictures, videos, and other material according to the storyboard made at the pre-production stage. The results at the production stage were imperfect videos, with the format according to the device used.

Post-production

At this stage, video development or editing was performed according to the need to make the video more interesting to watch. The development process was carried out using a video editor application. The researchers added features such as video intros, text or captions, transitions and animations, background music and background text to get interesting video tutorials at the development stage. The following is a screenshot of the video tutorial developed.

Figure 2. Opening of the video tutorial

Figure 2 depicts a screenshot of the editing results of the opening video before entering the tutorial material. The duration of each video tutorial was 30 minutes. Entering the video tutorial started with an intro, and then the presenter conveyed the opening greetings and the objectives and learning outcomes in each video tutorial before entering the core material, as shown in Figure 3.

Figure 3. Presenter on video tutorials

This video tutorial presented explanations and practical ways of using SPADA UNS, which users could follow independently. To produce good and quality video tutorials, the development process was followed by trials and evaluations carried out by the development team involving peer group members of the Information Technology Development Center for Learning (PPTIuP), LPPMP, UNS. The evaluation during development aimed to obtain input on the deficiencies of the media produced and developed. Improvements were made based on input provided by members of the PPTIuP peer group.

After the development process, a small group trial was conducted on Spada users. This trial was intended to obtain a feasibility assessment of the material or content and learning media through tutorial videos on using Spada UNS. A questionnaire accompanied the trial to gather opinions or input regarding the feasibility of the video tutorial. Questionnaires were given to 27 respondents who were active users of Spada across several faculties at UNS. The instrument in the questionnaire provided a feasibility assessment on three aspects: video display, accessibility, and video tutorial usability. The trial results can be seen in the following table:

Display aspect

The display aspect contained the suitability of the presentation of the Spada video tutorial with the user's needs in using Spada, delivery using easy-to-understand language, the effectiveness of using language, the quality of the video or image, and the suitability of the video background.

Table 2. Questionnaire results on the display aspect of the video tutorial

Statement	Percentage	Criteria
Video tutorials as needed	100%	Very good
Easy-to-understand language	96%	Very good
Effective use of language	82%	Very good
Video/image quality	100%	Very good
Background	82%	Very good

Accessibility aspect

Accessibility aspects comprised ease of access, presentation, and video duration.

Table 3. Accessibility aspects of tutorial videos

Statement	Percentage	Criteria
Videos are easy to access and use.	96%	Very good
Video tutorials are presented coherently.	96%	Very good
Video duration as needed	63%	Good

Usability aspect

The usability aspect consisted of using video tutorials as an independent training medium, i.e., using video tutorials in using SPADA.

Table 4. Usability of Video Tutorials

Statement	Percentage	Criteria
Help self-training	89%	Very good
Video tutorials are very useful.	100%	Very good

The average percentage in the usefulness aspect of video tutorials was 94%, classified as very good.

The percentage with very good criteria was revealed by recapitulating the study findings from the three areas of the product being produced. The feasibility test results from the aspect of video display included conformity to user needs, use of easy-to-understand language, the effectiveness of language delivery/use, video quality, and background on video tutorials as a whole, getting an average percentage of 92%. Based on the table of video tutorial feasibility criteria from the display aspect, it was included in the very good criteria.

The feasibility test results from the accessibility aspect, including the components of easy access to video, video presentation, and video duration, overall obtained an average percentage of 84%, which means it was included in the very good criteria. In this aspect, the respondents generally assessed with very good criteria, but the respondents gave some notes regarding the duration of the video. The duration of the video was a concern of the respondents to be improved. Based on interviews, several users provided input to shorten videos by breaking one video into several videos, so the video duration was between 10-15 minutes.

The usability factor, which includes the components of the usability of video as an independent teaching medium and the usability of videos in general for Spada UNS users, as a whole, obtained an average percentage of 94% in the feasibility test results. It was included in the very good criteria according to the table of video tutorial feasibility criteria from the usability aspect.

Implementation and Evaluation

After the development phase, implementation and evaluation were carried out involving Spada UNS users. Video tutorials in MP4 format were uploaded on YouTube. Six video tutorials were successfully created, as follows: 1) Video tutorial SPADA series #1, with the theme “Creating a Course”, 2) Video tutorial SPADA series #2, with the theme "Adding Resources and Completion", 3) Video tutorial SPADA series #3, with the theme "Creating a Forum", 4) Video tutorial SPADA series #4,

with the theme “Making an Assignment”, 5) Video tutorial SPADA series #5, with the theme "Creating Quiz with AIKEN", 6) Video tutorial SPADA series #6, with the theme "Creating Quiz with Exam View".

To make it easier for users to access video tutorials, the researchers placed a video tutorial link on the Spada UNS page http://spada.uns.ac.id. The link was placed on the Spada UNS toolbar on the “Video Tutorial” menu. Users can access the video tutorial menu without having to log in first, so anyone can access it, even if they do not have a Spada UNS account. A screenshot of the video tutorial menu can be seen in Figure 4.

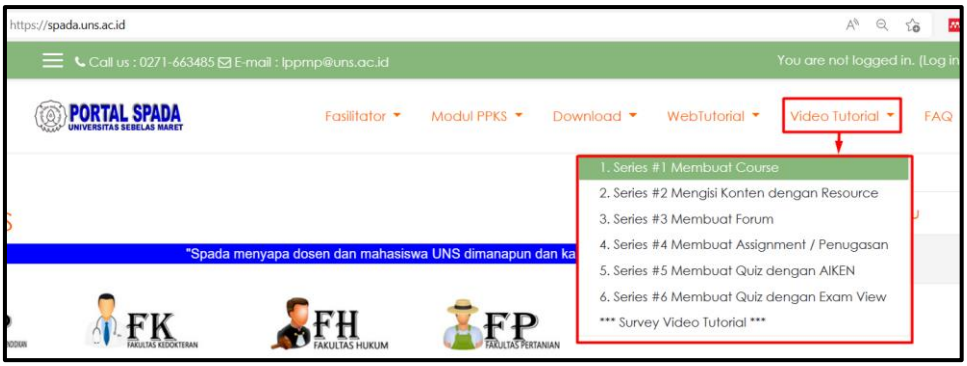

Figure 4. Screenshot of the video tutorial menu at Spada UNS

The video tutorial used on the Spada UNS page was then evaluated using a questionnaire. This questionnaire aimed to gather opinions, suggestions, and feedback from Spada UNS users who had utilized video instruction as a self-study resource. The "Video Tutorial Survey" menu item under the "Video Tutorial" menu in Spada contained an evaluation questionnaire form of video tutorials.

CONCLUSIONS AND RECOMMENDATIONS

It can be inferred from the results of the needs analysis provided by the Spada UNS user questionnaire that video-based tutorial media needs to be developed. Current Spada users require the development of video tutorial-based media as learning media or Spada training media independently. The average percentage of the three analyzed aspects in the research on creating video tutorial-based learning material was 90%, which denotes meeting very good criteria. Therefore, it is possible to conclude that video tutorial-based learning media products utilizing Spada UNS satisfied the feasibility criteria and could be successfully used and deployed as learning or independent training media.

As a follow-up to this research, considering that weaknesses were still found during implementation, it is suggested that it can be further developed by completing video tutorials that are not yet available and making video tutorials with a duration according to user recommendations. The video tutorials developed in this study complement the existing tutorials, namely text-based tutorials, web-based tutorials, and a pocketbook on using Spada UNS, which PPTIuP LPPMP UNS has published. With the availability of several tutorial options, users can choose tutorials according to their needs. With the availability of several choices of tutorial media in Spada, it is further expected to increase the use of Spada UNS as an online learning medium.

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