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DEVELOPMENT OF VIDEO-BASED LEARNING MEDIA IN BASIC PROGRAMMING COURSES LESSONS IN VOCATIONAL SCHOOL

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ABSTRACT

Learning media is a way of delivering messages or information to students during the teaching and learning process in order to pique their interest in learning. There is a demand for video-based learning media, and learning media may be developed using Basic Programming learning resources. The goal of this research is to provide video-based learning medium for Basic Programming classes in vocational high schools. This is a research and development (R&D) project that uses a four-dimensional model (define, design, develop and disseminate). T category, often known as a practical medium to which the instructor replied, received a score of 0.93. The teacher's answer has a practicality of 0.85, and it may be employed successfully with the post-test findings, as evidenced by the students' classical completeness of 0.81 in the high category.

Keywords : Development, Learning Media, and Video

1. INTRODUCTION

The internet and all current facilities can supply fresh information or allow teachers to explore educational resources, making learning easier and enriching teachers' perspectives. The major axis of learning implementation is teachers and students. As a source of learning, an educator is supposed to be able to create learning materials (Arifin, 2017:2).

Teachers have a variety of sophisticated tools and programs at their disposal, but they are seldom used to enhance learning activities, much alone as a learning resource (Alexius, et al. 2019:2). Approaches, techniques, models, and media, as well as instructor creativity and abilities, are all vital and must be examined. As a result, in order to accomplish successful learning, teachers must prepare themselves for the digital era.

Teachers still employ powerpoint presentations and lecture approaches in the learning process at SMK Negeri 1 Ampek Angkek. As a result, the learning environment becomes less appealing. The teacher often complains about a shortage of time for delivering instructional materials and practicing.

It is critical in vocational education to have an effective learning process so that students can absorb the content presented by the teacher (Fauzan & Rahdiyanta, 2017: 2). Educational institutions must be inventive and imaginative in developing fresh and engaging instructional materials (Mujiyanto, 2019:2). Creativity triggers are required in order for the subject offered to be explored in the sub-discussions and not simply focused on the examples given, so that students may undertake autonomous learning while remaining in the hallway (Syah, 2018:1). The failure to achieve the required learning objectives may be due to the submission of training materials that do not vary (Asih & Sabatari, 2015: 2).

The goal of this study is to create a product in the form of video-based learning material in Basic Programming disciplines utilizing the Open Broadcaster Software (OBS) application. It is intended that learning Basic Programming would be more enjoyable as a result of this application. Students can benefit from the presentation of these classes since they can help them comprehend Basic Programming topics. Open Broadcaster Program (OBS) is a live streaming recording and support software.

Open Broadcaster Program (OBS) is a free and open source software that was originally released in 2012. Its major role is to manage the numerous input sources that are accessible (Basilaia et al, 2020:8). Because it does not have to be online in real time or synchronously within a particular time range, this Learning Media is a more cost-effective method, minimizes device limits, and is not time-consuming (Sunardi 2021: 2). Learning media is a helpful tool for making the teaching and learning process go more smoothly (Supit, 2020:2)

Because video media is very simple to use, it was chosen as the learning media developed (Fauzan & Rahdiyanta, 2017: 2). The benefit of using video in the classroom is that it allows

students to see and hear representations of a concept or event (Tohari, 2019:3). Through online and offline presentations, learning films created using the Youtube Platform may be utilized for interactive learning in the classroom for both students and teachers (Sukarni in Wigati, et al. 2017:2).

The video-based learning media will be posted on Youtube so that it may be accessible anywhere and at any time while still being integrated into the learning process. YouTube is simple to use, does not need a lot of money, and can be viewed from anywhere (with suitable devices, of course) (Ruthellia, et al. 2017:7). The benefits of OBS video recordings include that they can be viewed several times and kept on devices offline, and movies published on Youtube may be used as repeat learning content without needing to construct a room/conference (Anggraini, et al. 2021:5-6).

2. LITERATUR REVIEW

Media for Education Learning is derived from the term "learning," which, according to Rusman (2017: 1), refers to the reciprocal interaction that exists between pupils and their surroundings as part of the learning process. According to Arsyad (2017:10), learning media is an intermediate or medium that is critical in the delivery of messages in the learning process. The material is presented in a way that piques students' interest and encourages them to participate in learning.

Setiaji claims that (in Arthur et al., 2019:3). The correct learning material has been shown to help pupils improve their abilities. One type of media used in learning is videos. According to Novita et al. (2019:3), video media, also known as audio-visual media, is audible media that can be heard and visible media that can be seen. Audiovisual media can help you communicate more effectively.

Youtube is one of the internet platforms that accommodates material such as videos, where individuals can search for, view, and share a variety of videos. Youtube operates as a distribution platform for original content producers and marketers, both large and small, and provides a space for people to interact, inform, and inspire others across the world (David et al. 2017:7). Youtube has been utilized as a learning medium by pupils in several countries, according to Samosir (2018:3). Youtube is utilized by instructors and students as an interactive learning tool. Youtube is linked to the internet because the internet facilitates learning, particularly in terms of accessing information (Samosir, 2018:5).

Setiawan (2017:6) discusses the advantages of learning media as a messenger, claiming that it may transcend the constraints of learning materials and create a more positive response from students. This has to do with using OBS Studio. OBS (Open Broadcaster Program) is a cross-platform recording software (and streaming). The program is free to use because it is open-source. Currently, OBS Studio is mostly used for sharing activities so that they may be seen by a larger audience (Abimanyu & Toba, 2019:3). OBS allows you to record learning slides along with video, other software, and so on. As a result, OBS is a very versatile and powerful tool for creating teaching videos in bronze, silver, and gold categories (Agusta, et al., 2020:5).

3. RESEARCH METHODOLOGY

According to Sugiyono (2016:407), research and development (R&D) is a research process used to manufacture specific items and assess the efficacy of such products. The sort of research used to generate a product in the area of education that strives to enhance the quality of learning in the classroom and its growth, according to Martianingtyas (2019:2), can be in the form of media, teaching materials, and learning assessment.

The final product of this development research is a video-based learning media created with the OBS (Open Broadcaster Software) Studio application. The 4-D (four-dimensional) model was adopted for this investigation. According to Lefudin (2017:171), a model is a notion for pursuing a material in order to achieve certain aims. Because, in line with the research challenge, the development model follows a methodical approach..

In this Basic Programming topic, a 4-D (four-dimensional) development approach is used to create interactive learning material. Define, Design, Develop, and Disseminate is the major step of the 4-D development paradigm, which may be converted into a 4-P model, which stands for definition, design, development, and deployment (Trianto in Fajri & Taufiqurrahman, 2017:7). (1) define (material determination): In this Basic Programming course, the define stage tries to identify the fundamental issues that must be addressed in order to construct video-based learning media. (2) design (design); the first design is the planning, drafting, and sketching of the media from several independent components into a coherent whole that serves a purpose. (3) develop (development): The development stage begins once the prototype has been designed. The goal of this step is to create a test that is legitimate, practical, and effective. 4) Disseminate the information (spread) The distribution phase is the last step in the development process.

Primary data was used in the creation of this interactive learning material. Primary data, according to Sugiyono (2016:225), is a data source

that sends data directly to data collectors. Data in the form of validity findings of interactive learning media supplied by validators, media practicality test questionnaires filled out by instructors and students, and effectiveness test data received from student learning outcomes assessments are all examples of primary data collected directly.

At SMK Negeri 1 Ampek Angkek, a trial of interactive learning media in Basic Programming courses was conducted. The test subjects in this study were students in class X Multimedia at SMK Negeri 1 Ampek Angkek, in Basic Programming subjects.

Validation sheets were employed as research equipment. Using the kappa moment formula, assess the validity and feasibility of the data processing.

$$Momen\ Kappa\ (\kappa) = \frac{\rho_o - \rho_e}{1 - \rho_e}$$

Table 1. The Kappa Moment (κ) is used to categorize decisions.

Interval	Category
0,81 – 1, 00	Very high
0,61 – 0,80	High
0,41 – 0,60	Medium
0,21 – 0,40	Low
0,01 – 0,20	Very low
≤ 0,00	Invalid

4. RESULTS AND DISCUSSION

The purpose of this study was to investigate the validity, applicability, and efficacy of video-based learning medium in Basic Programming topics at SMK Negeri 1 Ampek Angkek. The development is carried out in four stages of media development, namely: a) the definition stage (Define); b) the design phase (Design); c) the development stage (Develop); and d) the dissemination stage (Dissemination) (Disseminate).

4.1 Defining Stage (Define)

This step entails examining needs (needs analysis) for the process of creating learning support media in the class X curriculum, in order to ensure that the learning process is in line with the learning objectives.

Table 2. Basic Programming Class X Competencies

Competencies Fundamentals	Indicators of Competence Achievement
3.1. Using computer programming logic in a flow	3.1.1. Describe how programming algorithms work.
4.1 Creating a logic flow for computer programming	4.1.1. Use text to create a program flow (algorithm)

Sumber: Teacher Syllabus for the Basic Programming Course, 2013

This stage is made up of task analysis and concept analysis to develop indicators of attainment of learning outcomes in Basic Programming subjects that are in line with learning, according to students, so that Basic Programming learning is in line with learning objectives.

4.2 Design Phase (Design)

This test's preparation is based on Competency Standards that include Basic Programming and making a program flow with text (algorithms). The first design of a media is the planning, drawing, and sketching of multiple discrete components into a coherent whole with a function.

The goal of media selection is to choose the best learning media for presenting the subject. The OBS (Open Broadcaster Software) Studio tool was used to create video-based learning resources for this study. An application, according to Syani & Werstantia (2018: 88), is software that contains coding or directives that may be updated. According to Ayuningtias & Sari (2017:83), the application is software that is designed to support every computerized action performed by the user. OBS (Open Broadcaster Software) Studio was chosen because it is extremely supportive for generating videos, can merge text, graphics, animation, and music to create a learning medium, and can be operated on a computer and published to YouTube, as a result, OBS videos (Open Broadcaster Software) This studio was selected for the creation of educational material.

Figure 1. Front Cover Page

The Basic Programming video-based learning medium is shown on the front cover.

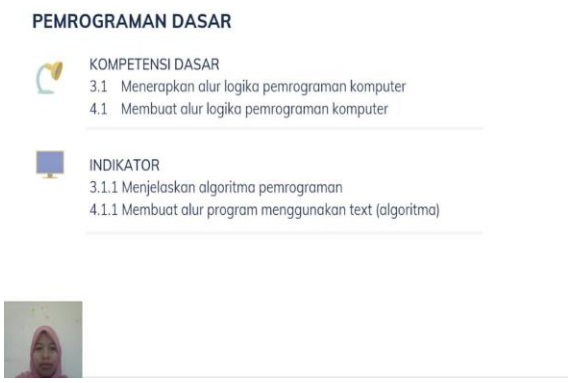

Figure 2: Display of Material Pages

This Material Form includes video learning resources and indicates core skills, basic competencies, accomplishment indicators, and materials
examined.

Figure 3: Contents Pages Display

Based on the signs on the video learning material, this Material Content Form presents the content of the material..

Figure 4: Display of the Evaluation Page

This Evaluation Form comprises an assessment of the Basic Programming learning material, which includes essay questions for students to complete.

4.3 Stages of Development (Develop)

The development stage begins once the design stage is completed. This stage attempts to provide valid, practical, and successful video-based learning medium. The validation step involves media and material validators, followed by a practical stage involving instructors and students, and finally, assessing the efficacy of video-based learning media.

To validate the created media, the researcher enlisted the help of two validators. Validity refers to an instrument's ability to measure what has to be measured, such as Sugiyono (2017: 121). Aspects of media content validation, such as media content that is in accordance with the material, instructional design aspects, such as instructions from the media stage validator, packaging aspects of teaching materials, such as the display of learning media, and language aspects, such as having media validation on average from two validators, namely 0.93, can be concluded by including the category "Valid".

The instructor as a practicality teacher who taught Basic Programming in class X SMK Negeri 1 Ampek Angkek completed a practicality questionnaire sheet that was used to assess the practicality of this Basic Programming learning medium. Because the average practicality evaluation is 0.85, as determined by the moment kappa formula, which is in the range of 0.81-1.00, the video-based learning material may be classified as "Very Practical."

The efficacy of learning media is evaluated with the goal of determining if the created learning media can be utilized to boost student learning activities and results in accordance with expectations.

According to Mardiasmo (2017: 134), effectiveness is a measure of an organization's success or failure in attaining its objectives.

Table 3. Results of the Effectiveness Test

No	Efektifator																	
	R1				R2				R3				R4				R5			
	pretes		postes		pretes		postes		pretes		postes		pretes		postes		pretes		postes	
1	3	60	4	80	3	60	4	80	3	60	5	100	2	40	4	80	2	40	4	80
2	1	20	5	100	2	40	5	100	2	40	4	80	1	20	5	100	2	40	4	80
3	2	40	4	80	3	60	4	80	3	60	5	100	2	40	4	80	3	60	5	100
4	2	40	5	100	2	40	4	80	2	40	4	80	3	60	5	100	2	40	5	100
5	3	60	4	80	3	60	5	100	3	60	5	100	2	40	4	80	2	40	5	100
Average	44		88		52		88		52		92		40		88		44		92	
G-Score	0.79				0.75				0.83				0.80				0.86			
Average Of everything	0.81																			
Category	very high efficiency (very effective)																			

The researchers produced an average of 0.81> 0.7 based on Table 2. that the value has been incorporated by the researchers into the benchmark table of agreement on the Gain Score algorithm. So "Very Effective" is the criterion for video-based learning medium.

4.4 Deployment Stage

At this point, the learning material generated is ready for teachers and students to utilize in learning Basic Programming, and it may be spread or used by other classes studying the same subjects at any time. This level of distribution aims to discover how instructors and students utilize learning media so that schools may use it as a supportive tool to improve student learning outcomes via quality learning.

Students and instructors may access video-based learning resources on YouTube and utilize it in the classroom for interactive learning. As long as you have access to a computer or a media presentation that is linked to the internet, you may utilize Youtube as a learning tool at any time, regardless of place or time.

Here's a link to a video-based learning medium on Youtube:

https://youtu.be/W9Nz5KWUO5M

5. CONCLUSIONS AND SUGGESTIONS

Based on the results of the preliminary study and discussion in the previous chapter, it can be concluded that the video-based learning media produced is stated by experts as valid media so that it can be used as a learning medium, with an average validity of 0.93, and that it has been uploaded to Youtube for Basic Programming subjects at SMK Negeri 1 Ampek Angkek. Learning media based on the resultant film is also described as a practical medium to which the instructor responds, with a practicality value of 0.85 for the teacher's reaction. The resulting learning media is also successful, as evidenced by the students' classical completeness of 0.81 in the high category on the posttest.

Because of the period and location of the study, it still has limitations. As a result of the recommendations made in this study for researchers, it is hoped that this research can be further developed and researched by using a larger trial and providing more complete learning content in order to gather feedback and refine this research so that it can find the best solution for dealing with learning obstacles. Teachers should be able to use this learning media and develop their creativity in the learning process by employing developments in information technology and graphic design in order to stimulate and boost student activity in order to improve learning results.

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