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Development of Learning Media Based on Video at Vocational High School Karya Guna Jakarta

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ABSTRACT

Learning media continues to develop and become an important component that supports the learning process because it can improve the quality of learning, help increase student engagement, and make lessons more accessible. The utilisation of learning media has some weaknesses such as not being able to display the original movement in practice and less interactive. These weaknesses can be overcome through media customization and development. Quality education can be realized by changing conventional media into learning media that is more appropriate and easier to understand. This study aims to develop and design learning video media for clutch system maintenance subject matter in Light Vehicle Chassis and Powertrain Maintenance subjects according to material experts, media experts, and media feasibility tests on students. This research uses the Research and Development (R&D) method and uses the 4D development model. The results of the feasibility test of video-based learning media resulted 95.29% from material expert validators, 86.66% from media expert validators, and 88% from the results of the media feasibility test results of 30 students. Based on the overall results of the product feasibility test indicate that video-based learning media is considered very feasible for use in learning.

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INTRODUCTION

Learning media continues to evolve and become increasingly important in supporting the education process. Learning media is an important component that supports the teaching and learning process as it can improve the quality of learning, help increase student engagement, and make lessons more accessible. Media is one of the factors that support the success of the learning process in schools because it can help the process of delivering information between teachers and students (Harsiwi & Arini, 2020). Learning media in general is a tool that can help the teaching and learning process Nurrita (2018). Learning media is anything that can be used to convey messages from sender to receiver with the aim of encouraging students' thoughts, feelings, and attention to be involved in the learning process (Sadiman, 2011) in (Fauzan & Rahdiyanta, 2017). Learning media is a tool or form of stimulus that

functions to convey learning messages (Siti, 2018). It can be concluded that learning media are tools used in learning to assist teachers in delivering material to students and making it easier for students to understand lessons so that learning objectives are achieved.

The learning process is an activity between teachers and students in order to achieve learning goals (Jamaliyah & Wulandari, 2022). The method of delivering material by the teacher also affects the delivery of learning material to students. If the learning method used by the teacher is appropriate, achieving learning objectives will be easier to achieve. (Faradila & Aimah, 2018) stated that learning can take place well, effectively, efficiently, and interestingly if a teacher can make changes in delivering material creatively. From these problems, teachers are required to create interesting and innovative learning, one of which is through learning media. By using appropriate and effective learning media, teachers can ensure that students receive and understand lessons well. The right learning media can help students understand the subject matter and improve student learning outcomes. Learning outcomes are the abilities that children acquire after going through learning activities (Fatimatuzahroh et al., 2019). Learning is a process, an activity and not a result or goal (Fauhah & Rosy, 2021). Learning is not just remembering, but it is broader than that, namely experiencing. Student learning outcomes have a significant impact on aspects of knowledge and skills. Student learning outcomes are an indicator of the success of an educational process. Learning strategies and media used in the classroom can affect student learning outcomes.

Learning media has an important role in the teaching and learning process, because it can make the learning atmosphere livelier and more meaningful (Imansyah & Hasanah, 2024). In addition, the use of learning media can also help overcome the limitations of time, space, and energy, and make learning more interactive. The selection of media in the learning process is very important, especially the selection of the right media to teach a field of study (Miftah & Rokhman, 2022). The selection of the type of learning media needs to be adjusted to the learning objectives, the material being taught, and the characteristics of the students. Learning media itself has various types. Therefore, it is necessary to choose the right learning media so that it can attract students' attention and convey the clarity of the objects they will observe in the learning process (Rohima, 2023).

Hidayat (2023) stated that currently the use of learning media still has several weaknesses, such as not being able to display original movements in practice and being less interactive. The lack of use of interactive learning media has an impact on the low level of student involvement in the learning process (Luthfi et al., 2024). These weaknesses can be overcome by adjusting and developing learning media. One of the learning media that can be used is video learning media. According to Khairani et al., (2019) learning videos are audio-visual media in which they show sound and images. Learning videos have functions, namely, they can attract attention and focus students' concentration on the material, learning objectives are more quickly achieved by understanding and remembering the message in the video, and can overcome passive students with the use of appropriate and varied media (Marliani, 2021).

Learning videos are suitable for use in both online and offline learning processes because they have various advantages. Nasikhah et al., (2021) state the advantages of learning videos are that they can overcome distance and time, are able to describe events in the past, convey messages quickly and easily in short, develop students' thoughts and opinions, and develop imagination. By using learning video media, it can help students understand the subject matter, increase learning motivation, and achieve better learning outcomes.

Based on the results of observations made by researchers during PKM (Teaching Skills Practice) activities at Vocational High School Karya Guna Jakarta, especially in the competence of light vehicle engineering expertise, information is obtained that currently learning resources and media owned by teachers are still limited. Students only take notes and listen when the teacher delivers the material, this makes students feel bored and do not understand the content of the material because they only focus on taking notes. From the results of the researcher's interview with the Light Vehicle Engineering teacher stated that the lecture method in front of the class was still used to convey material and complained that students had difficulty understanding the material because students only held on to notebooks. This has an impact on the learning outcomes of students to be not optimal. Learning achievement has not met 80% KKM (minimum completion criteria) because the teacher still has not used the right learning media.

After that, researchers conducted a needs analysis through a questionnaire or google form to students in class 11th grade of Light Vehicle Engineering (TKR). From the data from the needs analysis that has been carried out, 90% of respondents stated that the learning media used in light vehicle engineering subjects still use conventional media, namely modules or powerpoints. Learning media using whiteboards, books and PowerPoint make students less interested in following the ongoing learning process (Fitriani et al., 2019). Then followed by a statement that conventional learning media or powerpoint cannot increase interest and motivation in learning with a percentage of 90% of respondents. Because of this, 100% of respondents stated that there was a need for learning media development in light vehicle engineering subjects and also the percentage results of 100% of respondents suggested that a learning video was needed so that it could be used as a guide during practice.

Learning media development is needed to support the teaching and learning process, increase student interest and understanding, and help achieve learning outcomes. Video tutorials were chosen as a solution so that teachers do not have difficulty in explaining the material and do not always rely on live demonstrations, because videos can be played repeatedly. Therefore, researchers sought to develop video-based learning media with audio and visual support to improve the quality of learning. This research focuses on the development of learning videos for the subject matter ‘Clutch System Maintenance’ in the subject of Light Vehicle Chassis and Powertrain Maintenance at Vocational High School Karya Guna Jakarta, in accordance with the Flow of Learning Objectives.

METHOD

The research methodology used in this development study is the Research and Development (R&D) method. The research and development method is a research method used to make certain products and test the effectiveness of these products (Sugiyono, 2015). The 4D model is one of the research and development methods (Define, Design, Develop, Disseminate) developed by (Thiagarajan, 1974). The model is composed of four principal stages:

1. Define
    - Needs analysis to identify the existing conditions, anticipated outcomes, and potential alternative solutions to the identified problems.
    - An analysis of learners to identify their characteristics and learning requirements.
    - An analysis of concepts to systematically organize the strategy for the delivery of instructional content.
    - Task analysis to systematically identify the specifics of the primary tasks assigned to students.
    - Specification of learning objectives.
2. Design
    - The selection of learning media is guided by considerations of instructional effectiveness and learner needs.
    - An appropriate instructional format is selected to optimize the organization and communication of subject matter.
    - Create an initial design by compiling an outline of the contents of the learning media to produce a storyboard and script.
3. Develop
    - Expert validation by expert appraisal.
    - Guided by expert feedback, the developed products were revised to enhance their suitability and effectiveness as instructional media.
    - Student responses and recommendations served as the basis for further enhancement of the materials.
4. Disseminate
    - The final product is delivered to the research school through the respective subject teachers.

A questionnaire was utilized as the primary instrument for data collection in this study. The questionnaire contains an assessment of the feasibility of video tutorials from material experts, media experts, and student responses using a Likert scale assessment guide containing 5 alternative answers, namely Strongly Agree (5), Agree (4), Quite Agree (3), Less Agree (2), and Strongly Disagree (1). The data gathered from the validation conducted by subject matter

experts, media experts, and student feedback were subsequently analyzed, and the feasibility percentage was calculated using the following formula (Sugiyono, 2019) .

$$Percentage = \frac{Score\ obtained}{Maximum\ score}\ x\ 100\%$$

Following the determination of the feasibility percentage, the product's viability is evaluated according to the criteria presented in Table 1.

Table 1. Product Feasibility Assessment Criteria (Febrianti et al., 2021)

Percentage Score (%)	Interpretation
81 – 100	Very Feasible
61 – 80	Feasible
41 – 60	Moderately Feasible
21 – 40	Less Feasible
0 - 20	Not Feasible

RESULTS AND DISCUSSION

Results of Video Tutorial Media Development

This research was conducted on 11th grade students of Light Vehicle Engineering on the subject matter of clutch system maintenance of Light Vehicle Chassis and Powertrain Maintenance using the Research and Development (R&D) method referring to the 4D Development model (Define, Design, Develop, Diseeminate). In the **define stage**, it produces: (1) needs analysis, (2) student characteristics analysis, (3) concept analysis, (4) task analysis, and (5) learning objective specifications. Based on the results of interviews with teachers, it was found that (1) students had difficulty in understanding the material. Therefore, realistic learning media are needed that are in accordance with field needs that can increase students' interest and motivation to learn and make it easier to understand the material; (2) student characteristics analysis shows that conventional learning media cannot improve students' understanding of the material being taught, so there is a need to develop creative and innovative learning media in the form of videos; (3) at this concept analysis stage, the researcher determines learning objectives based on the flow of learning objectives at related school; (4) the result of the task analysis is to provide evaluation questions given at the end of the learning video to test students' knowledge; (5) the specification of learning objectives is done by identifying the material to be presented in the learning video by compiling an outline of the media content.

In the **design stages** included media selection, format selection and initial media design. At the media selection stage, it was decided that the media to be developed would be video-based learning media based on the results of the analysis that had been carried out in the previous stage. The selected format is MP4, chosen for its flexibility so it can be accessed on any device such as a mobile phone or laptop. Integrating various media elements like subject content, animation, text, narration, and audio

using movie maker software to create a comprehensive video tutorial. After completing the design stage, the next step is the **development stage**. The researcher conducted product validity testing involving a material expert, a media expert, and student responses. The results of the validity assessment to evaluate the product's feasibility level are presented in the following Table 2.

Table 2. Product Feasibility Assessment Results

Expert	Material Expert	Media Expert	Student Response
Total Score	81	65	1985
Max Score	85	75	2250
Percentage	95.29%	86.66%	88%
Criteria	Very Feasible	Very Feasible	Very Feasible

According to the results, material experts rated the product with a validity score of 95,29% indicating it is very feasible criteria. Media experts rated the product with a validity score of 86,66% indicating it is very feasible criteria. Student responses rated the product with a validity score of 88% indicating it is very feasible criteria. The overall feasibility test results suggest that the developed video tutorial media was highly accepted by respondents as an effective tool for independent learning. The final stage aims to **disseminate stage,** the research product for use in the learning process of the Light Vehicle Chassis and Powertrain Maintenance subject. This will be done by uploading the product to google drive and providing a scannable barcode.

Discussion of Video Tutorial Media Development

The learning video displays several sub-materials with engaging content delivery, dynamic visuals, and easier accessibility. The tutorial featured in the video is specific and focused on clutch maintenance according to the learning objectives flow. After the learning video is made, the video can be played via google drive or students can download it directly on their respective devices so that it can be watched offline anywhere and anytime.

Several aspects used to assess the feasibility of the material are the content of the material, language, presentation, appearance, and evaluation/test. Based on the results of the product feasibility test by material experts, it can be concluded that this learning video is very feasible to use in learning. Media eligibility in the video media development process aims to review and check the technical quality in video media (Rosyidah et al., 2019). Several aspects used to assess the feasibility of media are presentation, appearance, audio quality, font selection, image/illustration selection, and use.

By developing videos, independent learning can be made practical and can increase students' learning motivation. This is in line with research conducted by Qonitah et al., (2020) which shows that learning videos are very practical and can be done anywhere. This means that students can access learning videos anywhere.

CONCLUSION

The development of video-based learning media for clutch system maintenance in the subject of light vehicles chassis and powertrain maintenance was developed using the 4D development model, which consists of four stages: define, design, development, and disseminate.

The feasibility of the learning video can be determined from the validation tests conducted by subject matter experts, media experts, and media feasibility tests. The results of the material expert validation for the video-based learning media achieved a feasibility percentage of 95.29%, categorized as very feasible. The results of the media expert validation for the video-based learning media achieved a feasibility percentage of 86.66%, categorized as very feasible. The results of the media feasibility test from 11th grade of Light Vehicle Engineering students achieved a feasibility percentage of 88%, categorized as very feasible. Based on the results, it can be concluded that video-based learning media is very feasible and can be used for learning process.

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