The influence of audio visual media on student interest: automotive clutch power train system

Suyitno1, Aci Primartadi2, Dwi Jatmoko3, Muhnamad Nurtanto4, Dianna Ratnawati5

1,2,3Department of Automotive Engineering Education, Faculty of Teacher Training and Education, Universitas Muhammadiyah Purworejo
4 Department of Mechanical Engineering Education, Faculty of Teacher Training and Education, UNTIRTA
5Departemen of Mechanical Engineering Vocational Education, Universitas Sarjanawiyata Tamansiswa

Correspondence Author email: yitno@umpwr.ac.id

Abstract. This study aims to 1) Know the procedure for developing learning media based on audio-visual coupling system. 2) To find out the learning interest of students in the fourth semester of automotive engineering education at the Muhammadiyah University of Purworejo. 3) Make it easier for non-vocational students to understand the material of the power transfer system, especially in the 4 semester coupling system lessons at the Muhammadiyah University of Purworejo. 4) Increase students' interest in learning about the system material transfer of personnel, especially in the clutch system lesson in semester 4 of Muhammadiyah University of Purworejo. This study uses Research and Development (R & D) with subject research undertaken is the semester students of 4th grade B Automotive Engineering Education Purworejo Muhammadiyah University as many as 39 students. The data was collected using a questionnaire to determine the feasibility of the medium used using the student response sheet and the student learning interest questionnaire using the student learning interest questionnaire. From the results of the study, it shows that: 1) the procedure for developing learning media for the coupling audio visual system includes searching for potential problems, data collection, product design, design validation, design improvement, product testing, product testing, usage trials and product revisions . 2) media instructional audio visual system coupling system suitable for use in a medium of learning. This can be evidenced from media experts who showed a mean score - an average of 3, 1. Validation from experts who showed an average score of 3.4. The learning media for the coupling system audio-visual system also meets the quality criteria of learning media. This is shown by the student response, namely the small group trial obtaining an average score of 3.43 which includes 5 students and the large group trial obtaining an average score of 3.13. 3) In student interest in learning, it shows that with the audio visual learning media the coupling system can increase the learning interest of 4th semester students of class B at the Muhammadiyah University of Purworejo.

1. Introduction

in the teaching and learning process, the presence of the media has quite an important meaning. Because in this activity the unclear material presented can be helped by presenting the media
as an intermediary. The complexity of the material to be conveyed to students can be simplified with the help of the media. The media can represent what teachers are unable to say through certain words or sentences [1]; [2]; [3] Even the abstractness of material can be concretized by the presence of the media. Thus, students digest material more easily than without the help of media.

The education system in Indonesia has developed very well, but in its development is very less awareness of the benefits of education for a brighter future, whereas the education factor is essential for life and become a science that will not disappear until the old.

A student's reduced interest in learning is due to the delivery of less attractive material to students [4]; [5]. However, there are factors that most influence this, namely the lack of interest in student learning [6]; [7]; [8]). This is because students pay less attention to the lesson when the lecturer delivers the material so that if student interest decreases it will affect their understanding of the material that the lecturer teaches.

At the Muhammadiyah University of Purworejo, especially in the field of Automotive Engineering Education, I have obtained observational data that I surveyed students and lecturers in the subject matter of the power transfer system, especially the clutch system, getting data obtained by interviewing students on September 16, 2019. students experienced difficulties in learning theory, especially students who are non-vocational and students of SMK non-automotive experiencing difficulties in describing the visuals while SMK already have the basic skills of school many constraints that affect the interest of the students' study automotive engineering at the University of Muhammadiyah Purworejo which students graduate non The SMK is actually able to compete with the achievements of students who are SMK graduates, especially automotive majors, but the lack of learning and knowledge makes students experience difficulties in learning. In here, there are actually several solutions related to problems experienced by automotive engineering students by describing the audio visuals that I want to apply to 4th semester students, especially in the field of coupling systems in the subject of power transfer systems, so that interest in learning can increase.

Meanwhile, according to the opinion of the lecturer in the power transfer system course on November 19, 2019, data was obtained that actually automotive engineering education students, especially in semester 4, actually met the GPA standard (Grade Point Average), but the assessment was not only on attitudes and achievements but seen also from the results of a set of scores such as UTs, UAS, and the practice exam.

Here it can be concluded that in fact non-vocational graduate students, especially in the power transfer system subject, are actually able to compete with the quality of automotive SMK graduate students because automotive SMK graduates have basic practice but in theory or capture of the learning material it all depends on the IQ level of each student. Here with the method applied to students, it is expected that students will be able to understand the material that I developed using these media so that each student is able to understand objects using audio-visual media. This media is very effective in explaining and developing student skills, especially in the field of disassembling the clutch system and understanding the components, how to work and the damage that often occurs in couplings.

It is hoped that students will be able to understand the material conveyed easily and more clearly because this media combines audio and visuals so that the delivery of the theory is not only lectures but also with clear visuals because each student has different levels of understanding of the material. This method is made with the aim not only of students who have the basics such as SMK graduates and non-SMK graduates. In an effort to improve the quality or ability of students in practice and understand the coupling system of functions, ways of working, and maintenance as well as frequent damage, lecturers are required to be more creative in teaching students because not all students come from SMK but there are also from high school, therefore the media that I created hopefully will make it easier for lecturers in teaching and also be useful for students to understand more deeply.
2. Method
This study uses a research and development design or Research and Development, because the research methods are used to produce certain products, and test the effectiveness of these products [9]; [10]; [11]. Subjects in this study is the semester students four class B Education Automotive Engineering University of Muhammadiyah Purworejo school year 2018/2019 amount 39 because the class is considered sufficiently representative to serve as the research object, the views of the individual student in the eye study clutch system gets The grades are not good, and there are some students whose grades are below the KKM.

In conducting research, the data collected will be used to solve existing problems so that the data must be truly reliable and accurate. The data used in this study were obtained through the questionnaire method (questionnaire), which is a data collection technique carried out by giving a set of questions or written statements to respondents to answer [12]; [13].

The research referred to as data collection techniques with questionnaires is a technique for obtaining data with the contents or scale of the statements given to the research subjects. The data obtained by a questionnaire are data on the feasibility of audio-visual media coupling system and student learning interest.

Data analysis techniques include data interpretation criteria and data processing [14]; [15]. In developing instructional animation media, media that is said to be successful and in accordance with the criteria level if it reaches the 60% score criteria So this learning media can be used as instructional media in teaching and learning activities. In calculating each questionnaire item, the development determines the assessment, namely if the answer is a, the score obtained is 4, if the answer is b the score is 3, if the answer is c the score is 2, and if the answer is d the score is 1.

To determine the conclusions on the results that have been achieved, the following criteria are set:

Product moment correlation formula:

\[ r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\left[ N \sum X^2 - (\sum X)^2 \right] \left[ N \sum Y^2 - (\sum Y)^2 \right]}} \]

Description:
X = item score
R_{xy} = correlation coefficient between variants X and Y
Y = total score

This formula is used for the relationship between audio-visual media and student interest in learning at the Muhammadiyah University of Purworejo to experience an increase in interest in learning coupling systems.

3. Result and discussion
3.1. Media development planning
The media used in the learning process requires good planning. The media selection criteria stems from the concept that the media is part of the instructional system as a whole. There are several factors that need to be considered in selecting media, namely:

- Limited local resources. This means that if the media concerned is not found in existing sources, it must be purchased or made by yourself.
- Whether to buy or produce by yourself there are funds, manpower and facilities.
- Factors concerning the smoothness, practicality and durability of the media are concerned for a long time. This means that it can be used anywhere with the equipment around it at any time and is easy to carry and move.
- Long term effectiveness.
3.2. Media creation process
3.2.1. Video capture
The video was taken at the automotive lab workshop at Muhammadiyah University of Purworejo. Taking video using a cellphone camera then the video results are edited using the Kinemaster Mod v6 (Android) application.

3.2.2. Voting
The voice of the narrator is taken using an android application called the wave editor. The recorded sound is then processed using the application and the noise is removed, after which the noise that has been removed can be input into the video editing process using the Kinemaster mod v6 application.

3.2.3. Steps to create audio visual media
3.2.3.1. Input video into the kinemaster mod v6 application
Insert the video clip and adjust the placement in the video:
- Click the blank project
- Select the browser media for importing images
- Select a cut of the video to be edited
- Press and hold on the image or video you want to move the timeline video track, and do this method to set another video or image.
- Tap on the video if you want to extend the duration of the video to your liking.

![Figure 1. enter the video into the kine master application](image)

3.2.3.2. Image set scale / size of the timeline (set time line)
Tap the video / image and slide it right or left to shorten or lengthen the video.
3.2.3.3. Incorporate transition effects into your video

- Click the limit on the video
- Select the transition effect you want
- Set the duration of your transition effect by clicking on the video or image then you can set the time (timeline) according to your wishes.

Based on the observations, it is known that the problems are: a) The delivery of material in the power transfer system course for students at the Muhammadiyah University of Purworejo which has been applied so far tends to be one-way. b) Students pay less attention to learning activities. c) Non Vocational High School students have difficulty understanding the visual of the coupling system. d) Lack of student interest in learning the clutch system.

Data collection is carried out as a source of information in the form of product planning materials for researchers to use in making learning media that are expected to overcome and increase the potential and existing problems [16]. Researchers in data collection used anket which was conducted in February 2020, while the material chosen was in the power transfer system course, especially in the clutch system subject.

3.3. Designing instructional media products.

In general, the audio visual product design of this coupling system uses the design principles of learning media development. With the audio visual coupling system, it is hoped that it can increase student interest in learning. This is in accordance with the learning theory that learning media can attract students’ learning interest [17]; [18]; [19].

After the product is designed and made into a learning medium, the next stage is the formative evaluation of the initial product. The initial product formative evaluation includes several steps:

- Validation of media experts validates the feasibility of media before being tested in the field. From the results of the media expert's validation, learning media was included in the very good category and was suitable for use in research to the next stage.
- The material expert's response validates the quality of the material before being tested. From the results of material expert validation, the existing material is very good and suitable for use in the next stage.
- Small group trial conducted by 5 students in semester 4 of Muhammadiyah University of Purworejo. From the results of small group trials, learning media including the good category can be used to the next stage.

After the initial product evaluation, the next step is the implementation of the final product. This activity is carried out after the small group trial process has been completed and the learning media has been revised. Conducted in one meeting as well as evaluating by 39 5th semester students of the Muhammadiyah University of Purworejo. Audio visual coupling system
developed based on preliminary studies based on the needs analysis that has been described in sub planning. The manufacturing process is technical, by gathering relevant references for the development of the material.

Product validation goes through several stages, namely material validation and media validation, by selecting validators who are academically and professionally competent in their fields, so that comprehensive input is obtained for the feasibility of the media when tested. After receiving a recommendation, the media is tested in the field. Some of the advantages of this learning media are that it can be used as an alternative source of independent learning to overcome the weaknesses of classical learning. In this study, it shows that the use of learning media has a positive effect on student learning motivation after using learning media.

The audio-visual learning media for this coupling system before being used by students must go through the expert test stage first. Expert testing is carried out by material experts and media experts who are competent in their respective fields. Based on the assessment of media experts, it shows that the audio-visual learning media coupling system is valid and feasible to use even though there are suggestions from several experts.

Based on the evaluation carried out, we can see the learning interest of 4th semester students of class B of Automotive Engineering Education at Muhammadiyah University of Purworejo by providing audio visual learning media with a coupling system and student response sheets getting the average (mean)

| Questionnaire | Students | Average value |
|---------------|---------|--------------|
| Student interest in learning | 39 students | 85.84 |
| Student response | 39 students | 33.12 |

Based on the data in table 1, it is known that the research data on the average value of student learning interest get an average of 85.84 categorized as good from a maximum value of 120.00 and student response sheets get an average of 33.12 from the maximum value of 40.00. From this it can be concluded that the audio-visual media with video-based coupling systems can increase the learning interest of class B class B automotive engineering education students of Muhammadiyah University of Purworejo. This is in accordance with the function of the media as a means of education for the community in general, and for students, students in particular [20]; [21]. Students can be made easier by the media.

4. Conclusion
From the results of this research and development, it can be concluded as follows: (1) The development stage of learning media for the ignition system in 4th semester students of class B of Automotive Engineering Education at Muhammadiyah University of Purworejo includes searching for potential problems, data collection, product design, design validation, design improvement, product testing, product testing, usage trials and product revisions. (2) The results of product validation by material experts 3 , 4 (very good), media experts 3.1 (good), small group trials 3.43 (good), and product use trials 3.43 (very good). From the results of the assessment, it shows that the product is feasible (good) to be used as a learning medium. (3) The results of the study include student response sheets who get an average score of 33.12 (good) and the average student interest in learning questionnaire gets a score of 85.84 (good). (4) With the audio-visual-based learning media coupling system, students' learning interest in the power transfer system course, especially the clutch system, increases so that students, especially non-vocational and non-automotive vocational school and vocational schools, can capture theoretical learning more easily
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