

# MAKING LEARNING AUDIO-VISUAL MEDIA FOR MATERIALS AUTOMOTIVE POWER TRAIN SYSTEMS

Suyitno<sup>1</sup>

<sup>1</sup>Automotive Engineering Education, Pendidikan Teknik Otomotif, Faculty of Teacher Training and Education, University of Muhammadiyah Purworejo  
Email: yitnoback@yahoo.com

**Abstract** - This research has aim to: 1) know the process of interactive media development for technical measurement, 2) know the effectiveness of interactive media development for technical measurement.

This study is research and development. It is located on Faculty of Teacher Training and Education Sciences, majoring on Vocational Education Muhammadiyah University of Purworejo. This object of the study is interactive media in learning technical measurement. I use some questionnaires and tests for collecting the data. Then those are analyzed by quantitative method.

The results are: 1) the process of making interactive includes on three steps, they are: a) The needs

analysis, b) product development, including index design, navigation and contents, and c) individual, small group test and last product implementation. 2) this product can be used as a media for comprehending the technical measurement. The point of this study is interactive media is more effective than conventional media in comprehending the technical measurement. we can analyze them by the average difference between two classes; conventional class reaches 6,50 and experiment class reaches 7,80.

**Keywords:** Media, Teaching and learning, power train system

## 1. INTRODUCTION

According the direction of educational policy, program-making and information communication technology utilization occurs in the manufacture of systems and models of learning, instructional media program development and manufacture of non-learning educational media programs.

Making media program is intended to produce a learning media by leveraging information and communication technologies in order to improve the quality of education and educational equity.

It is located of learning process is that takes place in the Department of Automotive Engineering Education, on

Faculty of Teacher training and education science, majoring on vocational education Muhammadiyah of Purworejo with the course material power train system in particular, still use a one-way broadcast media such as Power Point. Lecturers are still predominantly use the lecture method to give course material in front of the class, then students record and listen, so although they still confused when lecturer gives question for them, it is likely due to students do not know what they got, was difficult for the student. Method like this is not efficient to implementation of teaching and learning.

The use of instructional media on power transfer systems course in Automotive Engineering Department of Education are felt urgency because most of the material that is held or stages of a process that requires the presence of visualization. It done improve the quality of the course, especially on the

material power train system required the use of instructional media that draws on all the topics of both theoretical and practical lectures. It is intended to provide visualization and material transfers easily from the lecturer for the students.

Material power train system consists of theory and practice, the materials incorporated into one and support each other. The process of learning the material energy transfer system implemented separately between theory and practice. Generally, the theory given by the professors lecture in outline only, then students are given the job practice. Where as less effective in perspective because not all students liked the way of learning. Learning the course material power train systems use a lot of power like the media, because of psychomotor and cognitive abilities of students are preferred. Students received less dominant learning experience if the course uses lecture and

practice. To address this need media that can accommodate many learning styles and give students a better learning experience. Tangible interactive learning media text, visual, and simulations can help student get many knowledge, deeper understanding of the concept, and to know applications of science of study.

Interactive learning media that is dynamic to support if used in learning process, as an interactive learning medium has the ability to explain the material which is a high power of abstraction and complicated. Learning audio-visual media can be packaged in such a way so as to make students want to learn themselves the materials provided in the media. Instructional media audio visual dapat filled lots of materials theory, practice, and original objects in text or visual form that can provide hands-on experience to the student. The use of interactive learning media is expected to reduce the barriers

that are often experienced by faculty and students in teaching and learning in the classroom and self-learning. (Masanto, 2006: 3).

Effort to increase the effectiveness of the course in particular power train system course is necessary to do a study on how the form of creating an interactive learning media that is suitable and appropriate in order to improve the quality of learning, especially power transfer system. The aim of this study include: 1)the process of making interactive includes on three steps, they are: a)The needs analysis, b)product development, including index design, navigation and contents, and c)individual, small group test and last product implementation. 2) this product can be used as a media for comprehending the technical measurment.

## **2. RESEARCH METHODS**

The method used in this study is (Research and

Development). Methods of research and development is a research method that is used to produce a particular product, and to be able to produce the product that used needs analysis study. The steps in the development of research as follows:

1. Phase Shifters material development system power
  - a. identification purposes
  - b. analysis
  - c. review instructional
  - d. Formulate basic competencies
  - e. develop criteria
2. Stage 2 software development.
  - a. analysis
  - b. design
  - c. implementation
  - d. Testing.

Here is diagram of the research methods designed to facilitate the development of instructional media power train system:

#### **A. Place and Time Research**

Research the manufacture of audio-visual media power transfer system was conducted at Faculty of Teacher Training and

Education, University of Muhammadiyah Purworejo for 12 months.

#### **B. Object Research**

Object of research is the development of computer-assisted learning media power train system as a medium of learning course material power train system. Furthermore, computer-assisted learning media are stored in the Compact Disk (CD).

#### **C. Data Collection Techniques**

Data was collected through a collection of documents and the use of a questionnaire, which is used to design and assess the suitable media developing media developed with the objectives set and determine the feasibility of interactive learning media power transfer system. Respondents were involved in multimedia data retrieval is learning expert, expert first one is used. The result of the material is the second one is to the description.

#### **D. Data Analysis Techniques**

Analysis technique of data at the first stage is use quantitative descriptive exposes media products modified after it is implemented in software, validation and test the feasibility of the product to be implemented on college power transfer system. Furthermore, the data that is processed communicative with the expected number and percentage obtained (Arikunto, 1996: 245), or can be written by the following formula.

$$\text{Percentage viability (\%)} = \frac{\text{scores were observed}}{\text{expected score}} \times 100 \%$$

The data were analyzed by quantitative descriptive analysis techniques disclosed in the distribution of scores and the percentage of category rating scale that has been determined. After the presentation in the form of a percentage, the next step describe it and draw conclusions about each indicator. Suitability aspect in instructional media developed using the following table:

Evaluation criteria above is Sudjana assessment criteria (Sudjana, 1990: 45). Criteria validation media

Interpretation Criteria	Percentage	Criteria
A	80% - 100%	Valid
B	60% - 79%	quite valid
C	50% - 59%	Less valid
D	< 50%	/ Revision Invalid / Replaced

### 3. RESULTS AND DISCUSSION

#### a. The results of data analysis matter experts

Based on the data processing experts on the media, the results obtained by 85%. Based on the results of data processing criteria have been determined, it is know that the instructional media developed power transfer system included in the criteria valid and can be used in the learning process.

#### b. The results of the data analysis of media experts

Based on the results of data processing, of the 10 items that validation by experts in the media, then the assessment criteria on aspects of media

including the valid criteria, obtaining a score of 35 with a percentage of 87.5%.

**c. Tests one of one**

This test performed with one-on-one to provide an assessment instrument based on the data filled by 3 students. Based on the above data processing, obtained the results of 69%.

**d. The results of the analysis of a small group of trial data**

Small group trials conducted after the trial one. Based on the analysis of the trial the, multimedia developed by researchers to be continued to be tested in a small group based on assessment, developed the overall multimedia percentage increased from 69% to 77%, although in a quite valid criteria.

Of the process of making interactive media power transfer system been known that the media-making process with steps, among others, through three stages: a) analysis of requirements, b) the development of products,

includes index design, navigation and content. c) testing one-on-one, small group testing and final product implementation. From the analysis of the effectiveness between the control and experimental groups above can be seen that there is a difference between students with multimedia learning systems and conventional power transfer.

Based on the analysis of the data it can be seen that the power transfer system media is more effective than conventional media. It can be seen from the difference between the control class (conventional) with an average value of 6.50 and the experimental class with an average value of 7.80.

This result can be seen as a factor in learning to do. Multimedia power transfer system contributes to a better understanding of student learning. Some of the advantages of this is developed multimedia can be used as an alternative source of self-

learning to overcome the disadvantages in classical learning. In this study show that the use of instructional media positive effect on student learning outcomes and there is also an increase in student achievement after using instructional media.

As one of the functions of the media, the media can have a function beyond the boundaries of the classroom. Many things may not be experienced directly in the classroom by the students on an object, which is caused, due to: the object is too small, too fast-moving objects; and objects that are too complex. In this medium in the measuring instrument readings may be adjusted for by the students, so that the measuring instrument is clearly legible at a considerable distance. It's easier for educators to teach in a classroom. In essence, through the use of appropriate media, then all obyekitudapatdisajikankepadape sertadidik.

#### **4. CONCLUSION**

1. The process of learning media power train system in this study is performed in three steps: a) needs analysis, b) the development of products, which includes the design of the index, navigation and content. c) testing one-on-one, small group testing and final product implementation.
2. Based on the analysis of the data it can be seen that the power transfer system media is more effective than conventional media. It can be seen from the difference between the control class (conventional) with an average value of 6.50 and the experimental class with an average value of 7.80.

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