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Successful Multimedia Learning for Vocational Schools Model Development

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Abstract - *This study was to develop a new model taken from the hypothetic and factual model researches which applied in some Vocational Schools in Central Java Province. The data collection method used was Focus Group Discussion conducted in-depth interview and discussion with teachers on vocational school for development of based multimedia learning applied in subjects at school.*

Sample was conducted using judgment area sampling technique, based on the determination of research area including Vocational Schools in Central Java which implemented the multimedia learning model in their process learning and teaching activity

Method for analysis used qualitative by using focus group discussion was to discover the best practice of developing multimedia learning for vocational schools in Central Java as a new model in applying of multimedia.

The development of successful model of multimedia learning referred in this study was to measure or to provide a kind of guidance for teachers in multimedia usage. The planning phase of multimedia learning successful model consists of learning strategies, principles of multimedia learning usages, sources of learning, teachers' cognitive understanding, teachers' readiness, students' readiness, and the learning media readiness. The implementation phase of this learning model consists of the usage of computers during the learning process, audiovisual material usage, selection of learning media, software and interactive media selection, and selection of technology. The evaluation phase of the multimedia learning consists of assessment of learning result and the assessment of successful model of multimedia learning.

Key Words: Multimedia Learning, Successful Model, Vocational School, Research and Development, Learning Strategies

1. INTRODUCTION

Information technology along with multimedia learning has been one of facilitators for the learning activities, providing a great contribution toward the basic shift on the structure, operations, as well as organizational management. Due to the multimedia learning method, users find themselves easy to do their activities. This kind of method has changed the monotonous traditional learning method. The method influence the way material and duties of the students deliver, it automates the process. The main reason of the multimedia learning method used is the needs of maintaining and improving the competition, reducing the cost, and increasing the flexibility (Kadir, 2003: page 10).

Conventional learning activities still play an important role in the learning process, especially in terms of knowledge delivery effectiveness, communication and interaction among individuals. This kind of learning activities enables direct communication and interaction between students and faculty and among the students themselves. Under the condition, content delivery, feedback, question and dialogue may occur in a lively manner. Visualization clearly defined learning process through a variety of media. Visual, verbal, gesture or facial expression contribute to determine the understanding of the processes of learning activities that take place (Hidayat, 2014, page.657).

One of the challanges in education system is how to develop a knowledge based-society, where it takes a certain model in terms of achieving such a goal. Multimedia learning is method of learning using and applying the information and communication technology (Chaeruman, 2008: page 30). Mutlimedia learning system is a system that applying a learning process providing the users to use such digital media and assets as internet and audio visual (graphics and text) during the learning and teaching prosess (Chaeruman, 2008: page 31). The teachers' perception on students while using the multimedia learning help them to maximize the usage of such a technology.

The development of multimedia learning in the process of teaching and learning at vocational schools is necessarily applied. That is to transfer knowledge from the teacher to the learners in order to run properly and effectively learning process that in turn, will increase the productivity of teacher performance, either individually or organizationally. Teachers are important elements to attend during the teaching learning process though the learners can actually learn independently. It is because the roles of teachers in the classroom are not only to teach, but also they educate them. While the conventional teaching and learning strategy simply uses textbooks and other mold as the media, the communication and information technology model is a quite different. The communication and information technology has its widely impacts on our

which one of them contributes to learning process in school.

Audio visual is one of media attracting the students to learn. The media has also enabled the students to learn independently. It means that the students can learn by themselves and they will comprehend more while the teachers explain the materials they have learned through the media. The usage of this multimedia media is useful for the students to learn. This is also expected that multimedia will finally help the students to learn independently by the senses of sight and hearing.

2. THEORETICAL FOUNDATION

2.1. Multimedia Learning

Multimedia learning system is a system applying a learning process providing freedom to the uers to connect and use various digital media, internet, and audiovisual (videos, graphics,and texts) during the learning teaching activities (Chaeruman, 2008: page 31)

Through multimedia learning, learners are expected to learn though they are physically absent or unable to attend classes. Such a situation may take place if the institution has developed and implemented a multimedia learning in the learning activities that will, in turn, optimize the students' learning. The interaction between learners and teachers will no longer be restricted by the the classroom course, but the interaction can be continued through cyberspace/virtual room (Siahaan, 2008: page 44).

There are three functions of multimedia as one of learning and teaching process. First, multimedia functions as an instructional aided tool. Second, it can be used as interactive tutorial tool, for example in simulation activities. And the third, multimedia can be used as a source of learning instruction, for instance as a means of storing a set of microscopic slides or radiographics.

2.2. Successful Multimedia Learning

In the context of learning, the adaptation is about creating a learner experience that purposely adjusts to various conditions over a period of time with the intention of increasing success for the effectiveness of learning application (Dwi et.al., 2013:page 284).

The process of design an applied multimedia learning is expected for function effectively. The effectiveness shows that the development of multimedia learning concept has been successful (Laudon and Laudon, 2000: page 24), describing that the success of multimedia application is something difficult to do.

Based on the criticism of Laudon and Laudon (2000:page 25), there are five variables to measure the success of technology utilization. The five variables are the high level of system use, user satisfaction on system, favorable attitude, multimedia learning users, the achieved objectives, and financial payoff. DeLone and McLean (1992: page 65) have also proposed a model describing the success of information technology utilization. Although the model of DeLone and McLean (1992: page 67) was arranged before Markus and Keil' criticism (2005: page 15), they included individual impacts and organizational performance in their model on the success of multimedia learning.

The results showed that students were satisfied with the pedagogical approach, and their academic achievements were also better than expected. Particularly important is that the dropout rate was greatly diminished, which could be related to students' satisfaction with the support they received from the instructor and the system (Linawati, et.al., 2012: page. 181).

3. Method of Data Collection

There were three methods used for data collection: (1) observation, this was conducted by visiting some vocational schools in Central Java Province, (2) questionnaire, consisting of instruments or a list of questions to ask to the respondents (the students of vocational schools in Central Java Province) used to analyze the success of multimedia learning applied in vocational schools, (3) interview, conducted to dig more information from the experts of multimedia in the observed vocational schools, in this case the multimedia teachers as to find the new application multimedia based-model

4. Method of Data Analysis

It used development and research method with Focus Group Discussion involving the multimedia teachers at vocational schools in Central Java Province to find out the new model in terms of applying effective and efficient multimedia (audio visual) method to use in learning and teaching process.

5. RESULTS OF THE STUDY

5.1. Model Development Framework for Successful Multimedia Based-Learning Model

The structure of conceptual development for successful multimedia based-learning was visualized below:

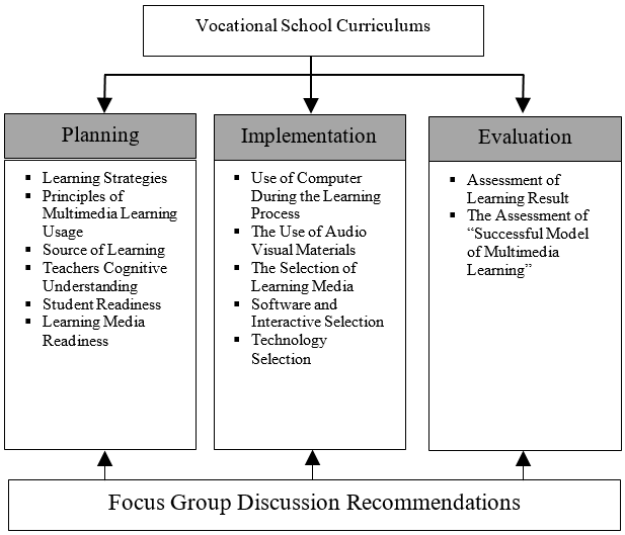

Fig-1: Early Conceptual Model for Successful Multimedia Based-Learning

5.2. Research Procedure Steps

The phases of research procedure arranged by Borg and Gall (1983: 775), adapted by Samsudi (2009: 92) is presented below:

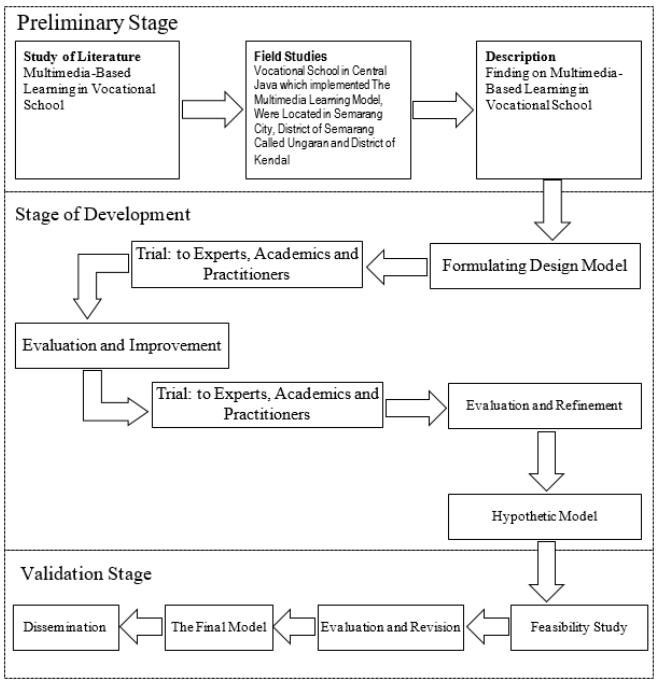

Fig-2: The phases of research procedure

5.3. Planning Steps

The planning steps of successful multimedia learning model consist of learning strategy, principles of learning media utilization, source of learning, teachers' cognitive understanding, teachers' readiness, and the readiness of learning media.

5.4. Implementation Steps

The implantation steps of successful multimedia learning model consist of the use of computer during the learning process, the usage of audiovisual materials, the selection of learning media, software and interactive selection, and technology selection.

1. Procedures of computer utilization during the learning activities

There may be some forms of the computer utilization during the learning activities, depends on designers' skill and learning developers, such as games, abstract materials changed into concrete ones, and animation; the availability of computer sets both in laboratory or classrooms; the availability of projector; the cognitive purpose of the computers, psychomotor and affective purposes of the computer, and maintenance documents of the computer set and supporting hardware.

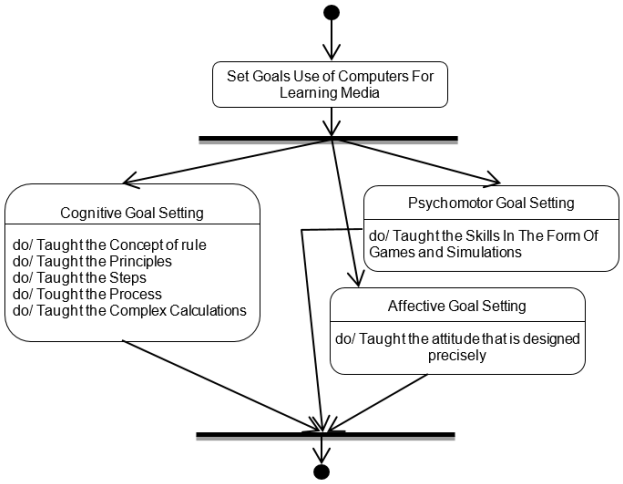

Fig-3: Flowchart of Computer Use in Developing Multimedia Learning

2. Procedures of Audiovisual Material Usage

Audiovisual media consists of silent audiovisual media that displays sound and still images, such as frame sound movie (sound slide), sound set movie; moving audiovisual media that displays the elements of sound and moving images. This media has a greater advantages due to it functioning two senses of the users: senses of hearing and sight. It was expected that the media usage would increase the motivation of the learners and clarified the material explained. The forms of audio could be audio cassettes, radio broadcasts, and CD audio. While visual materials could be textbooks, modules, and pictures. Silent audiovisuals might be power point (.ppt), while audiovisual could be movie, videos, teelvision broadcast, etc. Learning materials could be packaged into slide movie documents (.ppt), pictures (.jgp), documents (.doc), and the like.

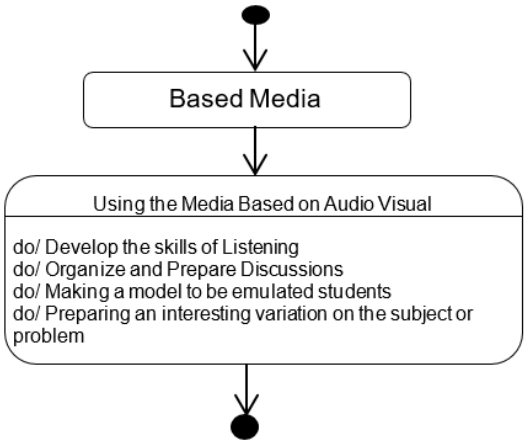

Fig-4: Flowcharts of Audiovisual Material Usage

3. Procedures of Learning Media Selection

Arsyad (2013: page 195) explains that the criteria of learning media selection stems the concept of that learning media is a part of a whole instructional system, therefore there are some criteria to focus on, i.e.:

1. Appropriate goals

Learning media must be selected based on the instructional purpose, which refers to at least two or three domains: cognitive, affective, and psychomotor domains.

2. Practical, flexible, and long life

It is not necessary that the media selection must be expensive and technology-based. The environmental and simple usage but appropriate would be more effective than expensive but complicated media. Simple and easy to use, affordable price and long life media should be considered in selecting the media to use.

3. Able and skillful in using the media

Whatever the media selected, teachers must be capable of using the media. The value and meaning of the media used depends on the teachers' skill in using such media. The skill of using the media will also be transferred to the learners that make them skillful in using the selected media.

Not only the appropriate media selection will influence the students' intelligence, it also influences their attitude and behavior. Audiovisual media consists of silent audiovisual media that displays sound and still images, such as frame sound movie (sound slide), sound set movie; moving audiovisual media that displays the elements of sound and moving images. This media has a greater advantages due to it functioning two senses of the users: senses of hearing and sight. It was expected that the media usage would increase the motivation of the learners and clarified the material explained. The teachers are responsible for selecting the appropriate learning media.

The learning media selection should be based on the analysis of the learning objectives, whether the objectives are verbal or non verbal mastery. In case, the objective of the media selection is oriented to shape the learners' attitude assignment, such media as movies, frame movies, videos, and tapes are appropriate. Audio and printed media are the appropriate ones for non visual purposes. Not only for the learners' attitude assignment, such media may be also used for the leaners' attitude and skill mastery. In case, the purpose of media is used for physical skills, the appropriate media should be in the form of training tools, while for non pysical skill, teachers may use computer, programmed learning, and interactive video. It is possible to use such a simple interactive media like interactive CD, along with the supervision of the teachers. In case, there are some request for using the media, an analysis of the pola need to do.

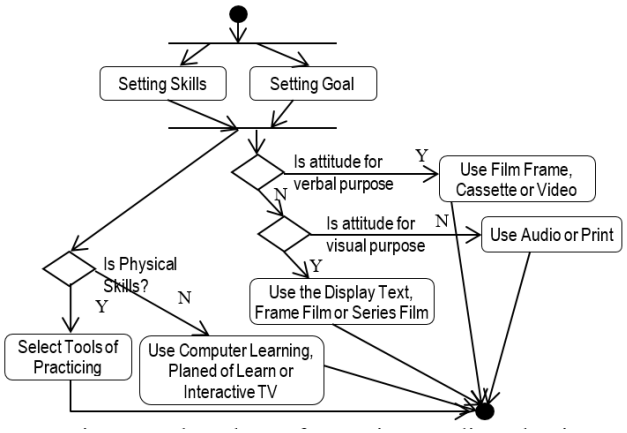

Fig-5: Flowchart of Learning Media Selection

4. Procedures of Software and Interactivity Software in Multimedia Learning

Software and interactivity means that the media selected is able to run two-way communication or interactivity, with the purpose that the learners are actively involved, physically, intellectually, and mentally. Interactive multimedia content was developed with purpose of improving the previous media where there were found some obstacles while the learning media consisted one kind of media only, audio or text only. Multimedia content was designed to overcome the restriction of space, distance, and the static model of conventional media. It was the convergence of the elements of texts, images, sound, animation and videos which were merged into one package to form the new flexible product.

Multimedia interactivity was something a must to exist. The previous media elements of interactivity including images, audios, texts, animations and videos were included but not clearly defined. The true meaningful interactive media was the media providing the learners a chance to interact with the media itself using keyboards, mouse, touchscreen, and other forms of tools. The media should include GUI (Graphic User Interface) because without GUI, the learners will not be able to run the interaction with the multimedia learning content.

Interactive multimedia should give full control for students or provide flexibility for the learners to stop the media played to provide them a space of time to to document what is important and/or to replay on the portion of the media they have not understood yet. The elements of the media should be adopted from the contenct tailored to the learning objectives or the purpose of the multimedia created.

In order to make it more effective in achieving the learning objectives, i.e. software or application mastery, interactive multimedia should be flexible, easy to run at any time with the lowest specification of computer used or could run simply using optical drive only.

Although interactive media is better in its interactivity than the conventional one, it does mean that the superiority makes the learners taking for granted to understand the material. Due to media by design, the relevance of interactive multimedia should be adjusted with the needs and purposes to achieve and adapted to the characteristics of the users, the existing obstacles, and the like.

There are many multimedia programs to use in interactive media, such as video based multimedia programs: final cut pro, canopus edius, imovie, pinnacle studio, flash video encoder; audio based multimedia programs: adobe audition, audacity, pro tools, soundslides, vuvox; photography based multimedia programs: photoshop, flickr, panorama software, soundslides, vuvox; interactivity based multimedia program: flash, flex, after effects, ajax; text based multimedia programs: wordpress, dreamweaver, twitter, indesign, movable type; and graphic based multimedia programs: illustrator, maya, freehand, blender, flash.

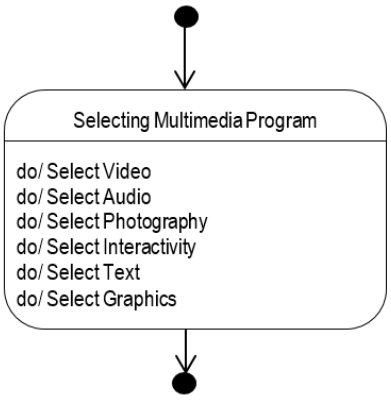

Fig-6 :Flowchart of Software and Interactivity Selection in Multimedia Learning

5. Procedures of Technology Selection in Multimedia Learning

The learning technology is a discipline. It is not only used for education, but also for any activities such industries, companies, and community. This kind of technology can be widely defined, not only hard technology; it also deals with soft technology. The synchronous learning environment (students involved during the learning process) needs both audio and visual media. In case, the learning environment needs visual media and demonstration, the audiovisual media to use are e learning and web based learning. Meanwhile, the asynchronous learning environment (online education) needs such visual video as television, e learning, and videos.

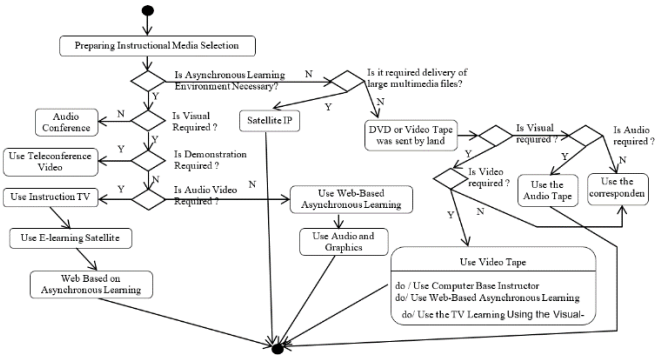

Fig-7: Flowchart of Technology Selection in Multimedia Learning

5.5. Evaluation Steps

The steps of evaluation in successful multimedia learning model consist of assessment on learning results and assessment on successful on multimedia learning model.

6. CONCLUSSION

The development of successful model of multimedia learning referred in this study was to measure or to provide a kind of guidance for teachers in multimedia usage. The planning phase of multimedia learning successful model consists of learning strategies, principles of multimedia learning usages, sources of learning, teachers' cognitive understanding, teachers' readiness, students' readiness, and the learning media readiness. The implementation phase of this learning model consists of the usage of computers during the learning process, audiovisual material usage, selection of learning media, software and interactive media selection, and selection of technology. The last, the evaluation phase of the multimedia learning consists of assessment of learning result and the assessment of successful model of multimedia learning.

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