The Responses of Teachers and Students to the Use of Multimedia Presentation in Scientific-Based Economics Learning

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Abstract: This study aims to describe teacher and student responses to the use of multimedia presentations in economics learning based on a scientific approach. This study employed descriptive survey method involving 27 teachers and 415 students as research subjects. The data collection instruments consisted of questionnaires and focus group discussions (FGDs). The results show that teacher response to the use of multimedia presentation is very positive, because it facilitates the implementation of economics learning process with a scientific approach. Similarly, student response is very positive. The use of multimedia presentations can improve the understanding of concepts, because abstract concepts can be simplified, and they are more actively involved in the learning process. The results of this study suggest that the economics learning process scientific approach-based can be more effective with multimedia presentation.

1 INTRODUCTION

Utilization of media in the learning process has been widely discussed and examined by experts. Kemp and Dayton (1995) have shown a positive impact of media use in classroom learning. Learning can be more interesting and learning-quality can be improved. Similarly, Sankey, M.D et al. (2011) reported that most students increase their learning outcomes as the impact of the use of multimedia.

One type of learning media that is being widely used is multimedia presentation. Multimedia is a medium that displays learning materials with techniques that combine all advantages of audio and visual media equipments with various presentation techniques that utilize computer technology and LCD projector as the main equipment. Briefly, Mayer, Richard (2009) defines multimedia as "Presentation of matter using words as well as images". Based on the idea, computer is an electronic device that belongs to the category of multimedia. Computer can involve various senses and organs of the body, such as ear (audio), eye (visual), and hand (kinesthetic). With the involvement of these various senses, it is possible that the information or messages conveyed become easier to understand. Computer has the ability to process various kinds of language symbols as a stimulus, ranging from numbers, letters, words, sound symbols, still images, motion pictures, and so forth. Computer will be very helpful when it is used as a medium of learning. Cruickshank et al (2006) says, "The software available in your classroom likely will be satisfactory with regard to both its quality and ability to help learners develop a range of lower-and higher-level thinking skills".

Multimedia presentation is one form of computer-based multimedia that can be used in learning process. Presentation, according to Cruickshank et al (2006), "is an informative talk a more knowledgeable person makes to less knowledgeable persons". In the perspective of learning process, presentation is one of learning methods. The advantages of multimedia presentation are as follows. (1) It is able to display objects that are not physical (imagery). Cognitively, learning by using mental imagery will increase retention of learners in remembering subject materials. (2) It has the ability to combine all elements of media such as text, video, animation, image, graphics and sound into an integrated presentation unit. (3) It has the ability to accommodate learners in accordance with learning modalities, especially for those who have visual, auditory, kinesthetic, or other types.

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In multimedia presentation, the visualization of messages, information, or concepts to be conveyed to learners is a very important part. Arrangement of visual elements must be able to display vision that can be understood, clear, readable, and attract learners' attention to fulfill its main function in helping learners to achieve learning objectives.

The effect of the use of multimedia presentation on student learning outcomes has been well documented by researchers. Mayer and Moreno (1998) report that multimedia presentation has an effect on memory capability, as measured by retention test, and applicability, as measured by transfer tests. Tien-Chi Huang, et al (2009) and Tolani-Brown N. et al (2009) state multimedia presentation can improve learning outcomes.

This study did not examine the effect of multimedia on student learning outcomes. Rather, it focused on the benefits of using multimedia presentation on economics learning based on an inductive scientific approach. In a scientific approach-based learning, the initial step begins with the activity of observing an object that can be displayed in the form of learning media. Based on the observation of an object displayed in the media, students are stimulated to ask, then to search for data, to associate, and to communicate.

2 METHODS

This research used descriptive survey method because it aims to describe the behaviors or opinions of a population by examining the sample (Cresswell, W. John, 2010). Research subjects consist of students and teachers of State Senior High-Schools in Bandung that have implemented a scientific approach in 2013 Curriculum. The samples consisted of 415 students, which were determined based on Morgan and Krecjie tables and were taken proportionately from each school. The sample of teachers consisted of 27 teachers, which are determined purposively (each school is represented by one teacher of economics).

Data required in this study were collected through questionnaires, documentation, and focus group discussions (FGDs). There were two kinds of questionnaires prepared in accordance with the expected data filled by research subjects (teachers and students). Focus Group Discussion (FGD) was used to obtain data that are more comprehensive from teachers as users of instructional media.

The data analysis was done through quantitative analysis (descriptive statistics) and qualitative analysis. The quantitative analysis was intended to describe the data in the form of frequency distribution and tables. The qualitative data analysis was done by first checking the validity of data that has been classified according to categories that can be objectively defined, as the construction of data ready for further analysis.

3 RESULTS AND DISCUSSION

3.1 Result Study

The teacher's response to the needs of instructional media in economics learning based on a scientific approach.

One of the difficulties faced by economics teachers in applying scientific approaches is the lack of available learning media to support the implementation of the 2013 curriculum-based learning processes. In relation to these difficulties, most of the economic teachers (94.44%), argue about the need for instructional media support to apply the scientific approach in the learning process. The teacher's response is presented in Table 1.

Table 1: Teacher's Response to the Need for Instructional Media Support in the Application of Scientific Approach for the Learning Process

Statement	Frequency	Percentage
Yes, learning media is needed absolutely.	26	96.29
Learning media is less needed because source books are enough.	1	3.71

The data in Table 1 provides an illustration that most of the teachers declare that the application of scientific approach require the means of learning media. Only 3.71% of teachers think that the source books only are enough. The required media is packaged in a multimedia presentation.

The student's response to the needs of instructional media in economics learning based on a scientific approach.

In the opinion of students, the learning media is needed in economics learning because the learning material is relatively abstract. This is indicated by the student's responses stating that the subject of economics is difficult to understand because it is abstract. What the teacher conveys is less understandable.

Learning media that can be used in economic learning are various. The student responses about the

types of media needed in economic learning can be presented in the Table 2.

Table 2: Students' Opinions for the Material the Teacher Explains are Easy to Understand

Statement	Frequency	Percentage
Teachers clarify materials with pictures/photos, graphs, diagrams, charts, posters, cartoons, and maps.	235	32.50
Teachers show interesting movies and videos.	263	36.38
Teachers use the powerpoint presentation.	192	26.56
Other (Games, Practice, Field Studies)	33	4.56

The data in Table 2 illustrates that, in the opinion of the students, the material described by the teachers is easily understood by using visual media (32.50%), audiovisual media (36.38%), power point (26.56%), and games and field studies (4.56%).

3.2 Discussion

The results of this study provide a picture that, in the learning process, students need stimulus in the form of learning media that allows them to understand learning materials more effectively. As many as 57.28% of students argue about the need of audiovisual learning media, and 22.43% of students argue about the need of instructional media that guides students to do things (learning by doing), so that students can understand learning materials more effectively.

Based on the opinions of teachers, there is a tendency that the media in the form of drawings, charts, diagrams, and others are much needed in economics learning. This is in line with Banaszak (1993), which explains that the purpose of pictorial representation is to make the concepts of economics being studied more concrete. The media diagram is an abstraction of a real object. In this way, students can visualize how objects are represented to represent actual existence. This process can facilitate the development of student skills in deploying diagrams. Furthermore, it is explained that the image media cannot stand alone, but it requires an oral explanation so that it becomes more meaningful. Therefore, it can be combined with audio media that provides an explanation orally.

The learning media that can be considered in the scenario is the graph. According to Banaszak (1993), in economic learning, it is to present the data in an easily understood manner. In this case, the quality of any graphical appearances is measured by how far the graphs are able to communicate the data to the reader. The relationships that are difficult to be visualized in narrative form will be more easily understood with graphs. There are two stages when students read the graph. The first is the mechanical stage. At this stage, students observe the mechanical features of a given graphic, the type of graph, the symbol used, the description of the axis, and the data source. Then, the student is asked to repeat the graphic title in the question form. The second is the interpretive stage. At this stage, students are assisted in exploring, describing, and explaining the relationships of the data presented and showing ideas for data comparison. Furthermore, students are invited to interpret the graphs, to conclude, to guess, and to generalize the data. Other media that can be combined is cartoon forms. According to Banaszak (1993), in interpreting cartoons depicting economic issues, students need familiarity with the basic economics concepts represented by symbolic representations.

The combination of the above visual media that can be packaged in the presentation media is highly relevant in scientific approach-based economics learning, which will encourage students to have the ability to observe, to question, to collect data, to associate, and to communicate their knowledge. Hence, the students will increase students' understanding of the subject materials. The results of research conducted by Mayer (2009) reports that the use of images, as one of media presentation, can increase the level of students' understanding of the subject materials. Similarly, Apperson, Jenifer (2010) reports that the use of power point media as a form of presentation media receive positive responses from students because it can improve their understanding of the subject materials. In line with Bates (1995), based on pedagogical considerations, multimedia presentation is suitable for use in scientific approach-based learning.

4 CONCLUSIONS

Based on the student's response, in the learning process, stimulus is needed in the form of learning media that allows students to understand the learning materials more effectively. Learning media required by students is audiovisual and able to guide students to be able to do things (learning by doing).

Therefore, students can understand learning materials more effectively.

Media in the form of picture or photo, video, and chart is much needed in economics learning. Picture and chart that are presented or combined together can visualize how objects are represented to represent actual circumstances. The combination of visual media image/photo, video, graphic, chart, concept map, cartoon, and poster can be packaged in multimedia presentation. According to the teacher's response, the use of multimedia presentations is highly relevant to be applied in scientific approach-based because it will encourage students to have the ability to observe, to question, to search or to explore for data/information, to associate, and to communicate their knowledge.

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