

NEEDS ASSESSMENT OF WEB-BASED INTERACTIVE MULTIMEDIA FOR INVENTORY OF FACILITIES AND INFRASTRUCTURE LEARNING IN VOCATIONAL HIGH SCHOOLS

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ABSTRACT

Technology is very important to support learning activities to achieve effective and efficient goals. This study aims to (1) Know the learning media used for learning inventory of facilities and infrastructure at SMKN1 Makarti Jaya; (2) Knowing the needs of appropriate learning media for learning the inventory of facilities and infrastructure for teachers and students in vocational schools. This study used a descriptive qualitative method. The sample of this study was one teacher and students of class XII Office Administration (AP) totaling 30 students obtained using cluster sampling techniques. Data collection techniques used were observation, interviews, and questionnaires. Based on the results of the study, it was concluded that (1) The media used to study the inventory of facilities and infrastructure of the XII AP Class at SMKN 1 Makarti Jaya were blackboards, worksheets, power points, and videos. (2) Teachers and students of SMKN 1 Makarti Jaya need interactive web-based multimedia to support the learning inventory of facilities and infrastructure practices. Thus, researchers are further suggested to develop interactive web-based multimedia to study the inventory of facilities and infrastructure.

KEYWORDS: Learning Media, Interactive Multimedia, Inventory of Facilities and Infrastructure.

INTRODUCTION

Education is an activity carried out by a student to improve the ability of knowledge and skills as needs that must be met, (Johan and Harlan, 2014) through good learning. Learning is said to be good if the learning objectives can be achieved. This success can be realized effectively and efficiently, one of them by utilizing learning media technology (Sanaky, 2013). The use of instructional media can have a positive influence on learning, students are more active and easily understand the material and the mastery of practical skills (Suryani, 2010; Pete, 2015; Hassan, Puten, & Buhari, 2015). Even with the presence of internet-based media, learning activities can also be carried out through virtual classes (Best & MacGregor, 2017). Therefore, teaching media is very important for learning to be more effective.

The development of Communication Information Technology (ICT) affects changes in the use of media in classroom learning, which supports Offline-based media, now many learning media utilize Online-based technology (Uzun in Ichsana, Dewi, Hermawati, & Iriani, 2018). One of the online learning media that is being more used is web-based interactive multimedia. Web-based interactive multimedia is a medium that is used in the online learning process and is equipping with a controller

that can be run by the user, resulting in interactivity between the user and the media. Interactive multimedia has advantages that can attract student's attention in a more extended period of time so that the material delivered can be easily accepted and understood by students (Syofiani, Hasanuddin, Ramadhan, Zaim, & Agustina, 2018).

These changes must make teachers more creative and innovate to make learning media that will be used teacher for learning to be more effective and efficient in achieving learning objectives (Ratheeswari, 2018). In this case, for learning inventory of facilities and infrastructure, to be following curriculum implementation policies 2013 through Indonesian Minister of Education and Culture Decree No. 330 / D.D5 / KEP / KR / 2017 in the Office Administration expertise program in Vocational Schools. Students are expected to expert new base competencies in the field of automation of governance of facilities and infrastructure, namely making an inventory of facilities and infrastructure inventory with electronic applications. The means that the use of instructional media that is operated using a computer is needed to study the inventory of facilities and infrastructure.

Widodo (2017) revealed that in vocational schools, the media is an important learning component to clarify the presentation of information to facilitate the learning process, as well as improve learning outcomes. Because learning activities inventory facilities and infrastructure, much emphasis on learning practices using computers, so it requires learning media that suits needs.

Learning that uses interactive multimedia is very interested by students, this can see from several studies on interactive multimedia that can attract attention and motivate students in learning, when compared with learning using conventional media such as blackboards and worksheets (Trieb, 2016; Andrade, Mercado, & Reynoso, 2008; Chiou, Tien & Lee, 2014). Student interest in learning using online-based multimedia technology is directly proportional to the use of the internet in the classroom of students at the secondary school level, which increases efficiency from 72.94% in 2016 to 85.52% in 2018 (Central Statistics Agency, 2018). Web-based interactive multimedia learning can be a solution for learning inventory and infrastructure in vocational schools to be more effective, which improves student learning outcomes.

Based on the actual situation, not all teachers in the subject of automation in managing facilities and infrastructure in vocational schools optimize the use of interactive multimedia for learning inventory of facilities and infrastructure. Even though schools already have and provide facilities to support learning activities, such as LCD projectors and computer laboratories. However, the availability of these learning support tools has not been able to be optimized in learning facilities and infrastructure inventory, because the use of computer laboratory facilities is still subjective for the practice of computer learning. So that during the learning process, the inventory of facilities and infrastructure of teachers is limited using the whiteboard media, Student Worksheet books (LKS), and textbooks.

This situation causes a lack of interest and motivation to learn students in learning inventory of facilities and infrastructure.

Based on the description above, to realize an optimal learning inventory of facilities and infrastructure, teachers are required to be creative and innovative in choosing and using learning media. Teachers need interactive multimedia development to add references to media choices that can increase student interest and learning outcomes, both cognitive, affective, and skill (Leow, 2014; Rajendra & Sudana, 2018; van der Veen & van Oers, 2017).

This study aims to (1) Determine the learning media currently used for learning inventory and infrastructure competencies in SMKN 1 Makarti Jaya. (2) Determine the needs of teachers and students related to learning media that are suitable for the competency inventory of facilities and infrastructure in vocational schools.

RESEARCH METHOD

This research is a descriptive study using a qualitative approach. Sukardi (2016) states that descriptive research is a research method that seeks to describe the characteristics of objects according to their original state. The data analysis technique used is a qualitative descriptive analysis technique.

Research Population and Sample

SMKN 1 Makarti Jaya consisting of class XII AP 1, XII AP 2, and XII AP 3 with a total of 90 students. The research sample The population in this study was one teacher of and students class XII Office Administration (AP) at obtained is class XII AP 1 research 30 students using cluster sampling techniques.

Data Collection Technique and Instruments

Data collection techniques in this study used literature study techniques, observations to see learning activities, facilities, and infrastructure in the classroom, interviews to obtain data from teachers, and questionnaires to obtain data from students. The instruments in this study were made by paying attention to 4 aspects: (1) Difficulties of students and teachers material inventory of facilities and infrastructure of the 2013 curriculum; (2) Types of media used; (3) Availability of facilities for supporting learning media; (4) The need for web-based interactive multimedia. The four aspects are used because they are considered the main aspects that need to be observed in the implementation of the use and needs of the media for learning inventory of facilities and infrastructure in vocational school.

RESULTS

Based on observations that have made in class XII Office Administration at the time of the learning inventory of facilities and infrastructure at SMKN 1 Makarti Jaya, it can see that the learning process

has implemented the 2013 curriculum. In the learning process, teachers often use simple media, namely media images, tools, visual aids, whiteboards, and textbooks. The technology-based media used by the teacher are power point and video-assisted by the Liquid Crystal Display (LCD) projector, but the use of such media is still very rarely done. It causes students to be less enthusiastic when taking part in the learning inventory of facilities and infrastructure, so some students look bored and do not pay attention when the teacher is delivering the material.

Observation in the school environment found that at SMKN 1 Makarti Jaya was equipped with computer labs facilities and had several LCD projectors. However, teachers of automation of facilities and infrastructure management have not been able to optimally utilize these facilities for learning inventory of facilities and infrastructure, because the use of computer labs is still used for the practice of information and communication technology (ICT) subjects. Besides, teachers are not yet optimally using computer laboratories because teachers do not yet have interactive computer-based multimedia applications for learning inventory of facilities and infrastructure.

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As for the use of LCD projectors is not optimal because of the availability that is still limited, so it must take turns with other subject teachers. Projector LCD users are also less suitable for learning needs for the inventory of facilities and infrastructure because they are only used to display images, videos, and power points, so they cannot be used for practical learning.

Table 1. Students Questionnaire Results

No	Answer Analysis	%
1	Students answer learning on the material inventory of facilities and infrastructure using computers is a difficult subject.	60%
2	Students respond that the media that has been used by teachers in learning inventory of facilities and infrastructure is not exciting and tends to be boring to learn.	70%
3	Students answer the media used by the teacher to help make it easier to understand the subject matter inventory of infrastructure.	40%
4	Students answered that the media that had been used by the teacher in learning the inventory of facilities and infrastructure were blackboards, worksheets, power points,	100%

	and videos.	
5	Students answer that the school has computer laboratory facilities and LCD projectors.	100%
6	Students can operate computers.	100%
7	Students know about interactive multimedia for learning.	65%
8	Students answer that the teacher has not used interactive multimedia to deliver the material and to learn the simulation practice inventory of facilities and infrastructure.	95%
9	Students need web-based interactive multimedia.	96%
10	Students agree and support the development of learning media in the form of web-based interactive multimedia simulation.	98%

Based on table 1 it can be seen that the learning competency of facilities and infrastructure inventory in SMKN1 Makarti Jaya has not maximized, it is proven that as many as 60% of students have difficulty understanding the subject matter. Difficulties experienced by students are caused by various aspects. An be seen in question number two, as many as 70% of students answer that the media used by the teacher is not unusual, monotonous and does not help students to understand the subject matter inventory of facilities and infrastructure. The situation is caused by teachers often using traditional media.

Aspects that indicate the availability of facilities and infrastructure that can support the use of interactive multimedia can be seen in the analysis of question number 5, that as many as 100% of students state that there is a computer laboratory in SMKN 1 Makarti Jaya. The availability of computer facilities is also supported by 100% the ability of office administration class students in operating computers.

Based on table 1, it that web-based interactive multimedia are needed for support learning the inventory of facilities and infrastructure. As many as 65% of students understand that multimedia can support learning activities more effectively. Therefore 95% of students approve the need for web-based multimedia to support learning, and 98% of students support the need for web-based interactive multimedia to study an inventory of facilities and infrastructure.

Based on interviews with subject-matter automation teachers in the management of facilities and infrastructure related to several aspects of learning an inventory of facilities and infrastructure, the following results obtained in table 2:

Table 2. Teacher Interviews Results

No	Answer Analysis
1	The teacher has no difficulty in teaching inventory facilities and infrastructure to students.
2	It is quite difficult for teachers to find suitable media to teach inventory of facilities and infrastructure.
3	The teacher uses learning media such as blackboards, worksheets, and sometimes use Power point and videos.
4	The use of media increases students in learning.
5	The teacher has a computer.
6	Sometimes the teacher uses the computer to teach inventory of facilities and infrastructure.
7	Teachers know enough about interactive multimedia.
8	Teacher need web-based interactive multimedia to support learning inventory of facilities and infrastructure.
9	Teacher need web-based interactive multimedia to support learning inventory of facilities and infrastructure.
10	The teacher agrees with the development of web-based interactive multimedia.

Table 2 shows the results of an analysis of interviews with teachers about learning an inventory of suggestions and infrastructure. It can that teachers have no difficulty in teaching material inventory facilities and infrastructure, but to get the media teachers to have difficulty is proven in question number 3; namely, the teacher uses only simple learning media. Based on research by Demak Manossoh, and Afandi (2018) the elimination of goods and assets must follow the applicable laws and regulations and have operational standards. So that the report on the elimination of facilities and infrastructure can be held accountable.

Based on table 2, the results show that the teacher has a personal computer and can operate it. However, the teacher has not maximally used the computer as a learning medium for the inventory of facilities and infrastructure. This situation is proven in question number eight, that the teacher has never used web-based interactive multimedia as a learning media.

The teacher requires interactive web-based multimedia for learning inventory of facilities and infrastructure to achieve learning objectives effectively and efficiently. Question number ten shows that the teacher agrees if there is a development of web-based interactive multimedia.

DISCUSSION

Based on the results of research conducted at SMKN 1 Makarti Jaya, there are still many students who experience obstacles in terms of enthusiasm in learning and difficulties in understanding the material in learning the inventory of facilities and infrastructure. Students experience obstacles and difficulties caused by less optimal teachers in the use of modern technology-based learning media. Teachers more often use simple learning media to teach material inventory facilities and infrastructure. The situation is due to the lack of mastery of technology teachers in learning activities, the Kemendikbud (Republika, 2018) that only 40% of vocational school teachers in Indonesia are ready with technology.

These results are consistent with the opinion of Nofitasari & Sihombing (2017), which states that the media is one of the factors that cause students' learning difficulties. Simple media such as pictures and textbooks are less attractive because the interaction between students and teachers is too little (Nasab, Esmaeili, & Sarem, 2015). As a result, learning becomes monotonous and boring (Riyanto & Gunarhadi, 2017).

SMKN 1 Makarti Jaya has computer laboratory facilities. However, the subject of automation in managing facilities and infrastructure has never used computer laboratory facilities to use interactive multimedia for learning an inventory of facilities and infrastructure. The teacher uses their personal computer to display power point learning media and videos. Learning media used by teachers at SMKN 1 so far have been enough to help students to understand the material inventory of facilities and infrastructure even though it is not yet optimal.

The use of media that is not by the learning needs and not following the characteristics of students will make learning activities ineffective. Saputri, Rukayah, & Indriayu (2018), in their research, revealed that inappropriate media would reduce student motivation. So, teachers need to use appropriate and exciting learning media such as web-based interactive multimedia, because the right learning media can improve student learning activities and the ability to understand the subject matter. Following the opinion of Pernanda, Zaus, Wulansari, & Islami (2018), which revealed that learning media is effectively used as a medium in the learning process compared to book-based learning (Freddy, Suwarno, & Olifia, 2019).

Teachers and students knew about web-based interactive multimedia. Web-based Interactive multimedia is one of the media using information technology used for learning activities that display material with a combination of audio, images, animation, and video, as well as interactivity elements, to make it easier for students to understand the material (Tazkia, Sahyar, & Juliani, 2019). It agrees

because learning becomes more exciting and more comfortable to understand and is very useful for students to understand the material delivered by the teacher (Sumbawati, Wibawa, Munoto, & Wibawa, 2018). Teachers and students consider interactive multimedia as media that is suitable for the learning needs of an inventory of facilities and infrastructure to improve the quality of learning. Based on knowledge about the advantages of web-based interactive multimedia, teachers must begin to believe that integrating interactive multimedia technology into learning is an effective way to improve the quality of education (Fauzi, Damayanti, & Ilahi, 2012). Agree with the integration of technology in learning Pratiwi, Siswandari, & Santoso (2017), which revealed that learning that implements the 2013 curriculum requires students to be more active and independent in learning by utilizing the technology of communication information by technological developments. Besides, integrating technology into learning requires support from schools to provide the necessary facilities, because the application of technology requires collaboration with all parties in the school, to improve the quality of learning to improve student learning outcomes (Keengwe & Hussein, 2014).

Based on the description above, it is necessary to make improvements to improve the quality of learning facilities and infrastructure inventory in SMK 1 Makarti Jaya by integrating learning media that is following the needs of the learning characteristics of the same inventory and infrastructure. One way that can be done is by developing web-based interactive multimedia. With the development of media can provide an alternative for teachers in choosing media to convey learning to be more productive and efficient (Djamas, Tinedi, & Yohanes, 2018; Baharuddin, 2015).

CONCLUSION

Based on the results of the study, it was concluded that: (1) The media used to study the inventory of facilities and infrastructure of the XII AP class at SMKN 1 Makarti Jaya were blackboards, worksheets, power points, and videos. (2) Teachers and students of SMKN 1 Makarti Jaya need interactive web-based multimedia to support the learning inventory of facilities and infrastructure practices.

Based on these conclusions, it is recommended for further research to develop interactive web-based multimedia for learning inventory of facilities and infrastructure, because there is still very little availability of media that is suitable for use in learning inventory of facilities and infrastructure.

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