

Literacy of Physical Education Teachers on ICT-based Instructional Media

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Abstract: Digital Literacy supports the mandate of the 2013 curriculum that requires teachers to take over Information Communication Technology (ICT) in the instructional media of Physical Education (PE) classes. Therefore, this study aims to explore the knowledge and the utilization (literacy) of ICT-based instructional media for physical education teachers. A descriptive study with survey method was conducted to 371 physical education teachers of elementary and secondary schools in the Yogyakarta Special Region. The data collection used knowledge test and utilization of ICT-based instructional media in PE. Quantitative descriptive analysis was used to process the data obtained. The results showed that the knowledge of PE teachers on ICT-based instructional media was in low (18.7%), moderate (62.6%), and high (18.7%) category. Meanwhile, the utilization of ICT-based instructional media in PE class were in low (13.4%), medium (73.6%), and high (13%) category. Based on the results, it can be concluded that literacy on ICT-based instructional media of PE teachers needs to be improved with the factors that hinder and support in gaining knowledge and using it. Therefore, education and training process is needed to increase their literacy on ICT-based instructional media.

1 INTRODUCTION

The development of ICT is a priority in improving the quality of education. Teachers are required to master ICT in to develop ICT-based instructional media and utilize it in the teaching and learning process. The utilization of ICT starts from primary, secondary to university, but the variation and focus of its use varies in each relationship. The development of ICT has enriched learning resources and media. Professional teachers must be able to choose, develop, and utilize various types of instructional media by utilizing the sophistication of ICT. The progress of ICT has been also implemented on various types of learning media. In addition to enhance skills in using and utilizing ICT in learning, teachers can also increase the latest insights and knowledge about learning theories, methods, and research results. Besides, ICT is used to discuss and talk about learning problems by teachers.

The development of ICT is rapidly increasing in the world of education. Some educational research findings have proven the benefits of using ICT as a tool for improving student achievement (Andrea &

Boos, 2004; Gary & O'Sullivan, 2003; Uwe, 2004). Clarke and Cronje's (2002) found that the use of "virtual classrooms" which is a combination of websites and list server allows for real classroom imitation with good effects and improves the quality of messages that can be done in conventional classrooms. Truell (2001) states that effective learning, which has useful practical implications, must support internet-based teaching. In a physical education setting, Tsangaridou and O'Sullivan (2003) found that the theory of the relationship between theories is needed in teacher practice through web-based learning.

The physical education teachers have the duties and responsibilities in developing instructional media. Curriculum 2013 (K-13) requires teachers to support information and communication technology in teaching and learning process. One of the factors that supports it is instructional media that can help physical education teachers to provide a variety of materials so that their students can receive well. ICT-based instructional media in physical education lesson is not easy to implement because of the uniqueness given by it. Therefore, good ability of PE

teachers in the knowledge and the utilization of ICT in PE lessons needs to be prepared.

Various debates can be seen from the above studies. The development of ICT has been very massive but has not been maximally utilized in the world of education. Demands for the use of ICT in the 2013 curriculum have not been fully realized by teachers, especially PE teachers. The ability of PE teachers to use ICT as a quality-learning medium has not been well identified. It can be concluded that PE teachers are expected to be able to know and use ICT in instructional media of PE. It is necessary to research and to explore the extent to which PE teachers need such assistance. Therefore, the purpose of this study is to investigate the ability (literacy) of PE teachers to understand and utilize ICT in instructional media.

2 METHOD

2.1 Procedure

This research is a quantitative descriptive study with a survey method. This research began by making a research instrument which was then validated. The study continued with determining the population and research samples. The research samples were used as the subjects of the research. The next step was collecting the data from the research samples based on questionnaires that have been prepared. Finally, the data were analyzed and used as the material for writing this article.

2.2 Participants

This research was conducted in the Special Region of Yogyakarta (DIY). The subjects of this study were 371 physical education teachers of primary and secondary schools in the region of Yogyakarta.

2.3 Data Collection

The data were collected by means of a survey using instruments in the form of a knowledge test and questionnaires for the use/ the utilization of ICT-based learning media. The instruments were compiled by the researchers which were then distributed to the respondents. So, the data were collected about the knowledge and the utilization of ICT-based instructional media by PE teachers. In this process, the validity and reliability of the

instruments were also carried out based on the data obtained. PE teachers' knowledge on ICT-based instructional media was measured through a knowledge test consisting of several question items that must be answered in accordance with the teacher knowledge. This knowledge test was based on the cognitive level factors (knowledge) of Bloom which consist of remembering (C1), understanding (C2), applying (C3), analyzing (C4), evaluating (C5), and creating (C6). The utilization of ICT-based Instructional Media was measured through questionnaires consisting of series of statements based on the factors of media use in and outside the classroom situations, computers, multimedia, telecommunications, and internet networks.

2.4 Data Analysis

Analysis of the data used in this study is the percentage that is the result of the division of the total score of the respondents by the total score that should be multiplied by one hundred percent (100%). The knowledge and usage /utilization data are descriptions of the PE teachers literacy towards ICT-based learning media.

3 RESULTS

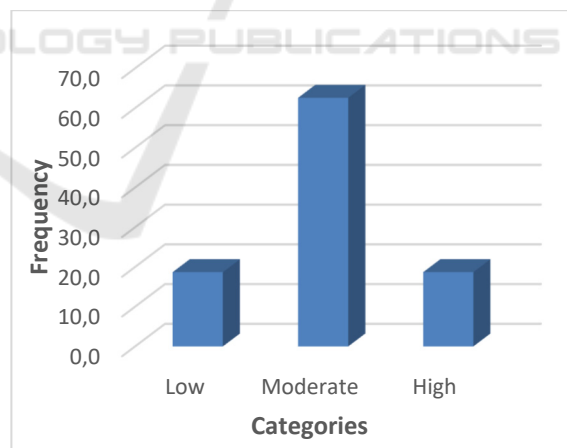


Figure 1: The Level of PE Teachers' Knowledge on ICT-based Instructional Media

Figure 1 shows that the level of PE teachers' knowledge on ICT-based instructional media in sequence was low (18.7%), moderate (62.6%), and high (18.7%). Meanwhile, the level of PE teachers' utilization of ICT-based learning media in sequence was in the low category (13.4%), moderate (73.6%), and high (13%) as shown in Figure 2

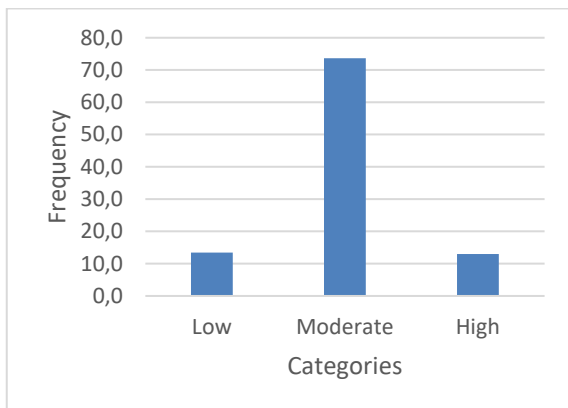


Figure 2: The level of utilization of ICT-based instructional media by PE teachers.

4 DISCUSSIONS

At this time in schools, the 2013 curriculum have been enacted. The 2013 curriculum using a scientific approach is believed to be a golden platform for the development of students' attitudes, skills, and knowledge in approaches or work processes that meet scientific criteria. The 2013 curriculum reaffirms to use the learning approaches by using teaching methods that further develop thinking skills and active learning methods that can encourage students to be more active in seeking answers or activities. In general, the notion of learning is an effort made to help a person or a group of people in such a way so the learning process becomes more efficient and effective.

The teachers' knowledge of ICT-based learning media needs to be improved in order to become a part of its development. This is in accordance with the theory of cognitivist perspective which views that learning is an internal process that includes memory, retention, information processing, emotions, and other factors. Among cognitive learning theories that are often used as the basis of theory in the use of instructional media is cognitive theory regarding the stages of development expressed by Jean Peaget. Heinich (1996: 17) expresses that with cognitive learning theory from Peaget, there will be a gradual process in receiving material to the brain in accordance with students' abilities. Knowledge construction is also based on the constructivist perspective, which is a learning theory with an emphasis on experiences, not merely cognitive knowledge (Heinich, 1996: 17). In addition, the knowledge base is also supported by behavioristic theory which states that learning

principles must be designed to produce behaviors that can be observed and measured (Neo, 2007). Some examples are teaching machine learning programs and learning programs (a forerunner to multimedia-based learning), and other programs that use the Stimulus-Response concept and reinforcing factors.

The utilization of ICT in learning includes tools or learning media, learning facilities/places, learning resources, and means of increasing professionalism. Nowadays, collaborative learning situations often use learning media. ICT allows students in different locations to collaborate on problem solving and online learning. The realization that learning is both a social and mental process is very important to understand how media can enhance learning. While ICT-assisted learning is increasingly popular in developed countries, this does not mean to be the most practical. Maybe, other types of media are more appropriate. Once again, the exact use of media depends on the needs. Educational experiences that involve real students and that provide concrete examples will last longer than abstract experiences such as listening to teacher lectures. Learning media help to add elements of reality - for example, the use of images or computer simulations during lectures. We have to pay attention to the submission of good learning materials, for example; problem solving, intuition, imagination, and creativity as learning components. Anido et al., (2004) further explains that placing teaching material on the web in the form of notes and assignments at this time is relatively easy and simple. ICT has at least four educational potentials, namely as a source of information, learning aids, media for conducting demonstrations in the classroom, and effective communication tools that facilitate student-teacher communication (Weigand, 2002).

Media literacy can be integrated in education in a number of ways (Friesem 2013; Friesem et al. 2014; Neag 2015). Media literacy plays an important role in art and music lessons (visual and audio literacy), language learning with a focus on communicative media functions (reading and understanding several types of texts); and in lessons such as history, geography, and science, which offer the possibility of promoting media literacy by searching, analysing, and presenting information. In addition, media literacy is explicit in the curriculum by discussing media topics and problems. Simons, Meeus, and T'Sas (2017) formulated three competencies to be literate on media. First, competency-using media is a competence that

reflects the technical use of media. Second, the competence in understanding media, namely competence in the field (critical) understanding of the media, including analysis, evaluation, and reflection on media content. Third, the competence that contributes medially, namely competencies related to the making and communication of media messages and participation in using media.

5 CONCLUSIONS

This study concludes that the knowledge and the utilization of ICT-based instructional media on PE teachers differ from each other, even though most are in the moderate category. This illustrates that the literacy of PE teachers on ICT-based instructional media still has many factors in gaining knowledge and using ICT-based instructional media. Various education and training process needed by PE teachers to increase their literacy on ICT-based instructional media.

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