INVESTIGATING THE USABILITY OF E-LEARNING TECHNOLOGY IN THE ELEMENTARY SCHOOLS OF MERAUKE DISTRICT, INDONESIA: TEACHERS' PERCEPTION

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Abstract:

This study aimed at describing the 5th grade elementary schools teachers' perception on the usability of e-learning technology of high-level plant anatomy as an educational medium in teaching-learning process. The only research statement guided this study is what are the 5th grade elementary schools teachers' perception on the usability of e-learning technology of high level plant anatomy as an educational tool of teaching? This study employed a quantitative approach using survey research design. A purposive sampling technique was used to obtain 50 respondents drawn from amongst 5th grade elementary schools' teachers of Merauke district, Indonesia. Quantitative data were analyzed descriptively using Statistical Package for the Social Sciences (SPSS) version 16 for Windows. As the general mean of the data analysis is of 54.5000 with the standard deviation of 2.32140, the present study indicated that the use of e-learning technology of high-level plant anatomy was positively perceived by the elementary schools' teachers in the sample. This finding might be imperative for the school principals to motivate teachers to promote students' knowledge and skills using e-learning technology as an educational tool of learning and, in turn, to improve students' academic achievement. This finding might be also worthwhile for the Head of Education Office at government level to raise special fund to design and, in the same time, to promote teachers' use of e-learning technology as media in teaching-learning process in order to help students understand all the distributed learning materials.

Keywords: teachers, perception, media, technology, elementary schools

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1. Introduction

Technology has become a major driving force in modern institutions as well as in the education institutions and e-learning technology has become one of the most important tools of teaching-learning activities in todays school. Our previous study revealed that biology teachers of elementary schools in Merauke city seem to stay with the tradisional teaching-learning media, such as chalkboard and textbook as they are easily available in the school and user-friendly for teachers. Since the textbooks seem to be outdated we have designed a computer-assisted instruction to help teachers in delivering learning materials of high-level plants anatomy to the 5th grade elementary schools of Merauke district, Papua, Indonesia.

There is a growing body of studies that have sought to investigate the nature and the usability of e-learning technology as media (e.g. Acikalin & Duru, 2005; Burke, 2005; Smart & Cappel, 2006; Işik, 2009; Song, 2010; Omona et al., 2010; Antonine, 2011; Aloraini, 2012; Malik & Agarwal, 2012; Tagoe, 2012), but most of them seem to deal with the impact of e-learning use on teachers' professional development and students academic achievement as well. As the use of e-learning technology as media in teaching-learning process is still new in the elementary schools of Merauke, this present study focuses on how the 5th grade of elementary school students percept the usability of the e-learning designed offered. Since there is no study yet on this topic in Merauke context, this present study is quite robbust.

As the aimed of this present study is to investigate the elementary schools teachers' perceptions of e-learning technology, what this study is not is that of how often elemetary schools' teachers use it as a tool of instructing their pupils. To investigate the perception we employed a quantitative approach using survey design which we will briefly explain below. Quantitative data were then analyzed descriptively using the Statistical Package for the Social Sciences (SPPS) version 16 for Windows.

2. Related Literature

2.1. A Brief Look on the Concept of E-Learning

There are various concept of e-learning. Stockley (2003) defined e-learning as the delivery of a learning, training or education program by electronic means. Meanwhile Karrer (2007) defined e-learning as any learning that utilizes a network (LAN, WAN, Internet) for delivery, interaction, or facilitation. Whereas Richard and Caroline (2007) defined e-learning as the use of technologies in learning opportunities, encompassing flexible learning as well as distance learning; and the use of information and

communication technology as a communication and delivery tool to support students learning and the management as well. E-learning could be synchronous, asynchronous, instructor-led or computer-based learning.

Regardless of the lack of agreement about the meaning of e-learning, what is consistent in the literature is that computer based educational tool that enables one to learn anywhere and at any time.

2.2. Types of E-Learning Technology

There are different types of e-learning. Yakaraju (2014) classified e-learning into two main categories, namely synchronomous and asynchronous. Further, Yakaraju (2014) analized them in detail as follows:

a.   Synchronous – set time (phone/Internet classroom sessions)

Synchronous e-learning is real-time learning. In synchronous learning, the learners and the teacher are online and interact at the same time from different locations. They deliver and receive the learning resources via mobile, video conference, Internet or chat. In this type of learning the participants can share their ideas during the session and interact with each other and they get detailed queries and solutions. Synchronous eLearning is gaining popularity because of improved technology and Internet bandwidth capabilities. In this type one can learn from the source of virtual classroom, audio and video conferencing, chat. Webinars, applicatin sharing, and messaging instantly.

b.   Asynchronous – Student directed, self-paced learning

Asynchronous e-learning is pause-and-resume kind of learning. In this type of e-learning, the learner and the teacher cannot be online at same time. Asynchronous e-learning may use technologies such as email, blogs, discussion forums, eBook's CDs, DVDs, etc. Learners may learn at any time, download documents, and chat with teachers & also with co-learners. In fact, many learners prefer asynchronous instead of synchronous learning because learners can take online courses to learn at their preferable time by not effecting their daily commitments. In asynchronous e-learning one can learn from the source of self-paced online courses, discussion forums and groups, and messages boards.

2.3. The Benefits of E-Learning Technology

Learning is a process that needs hardwork and sometimes makes students frustrated and get bored. In this context, the use of media in teaching-learning process is of important to attract students' attention and to make teaching-learning activities more effective and enjoyable. Besides, teaching media can also encourage students to take

more responsibility for and control over their own learning, engage actively in joint planning of the syllabus, and take longer-term perspective on their own learning (Masterman, 1985). Kuo (1991) stated that the use of media in teaching-learning process is very important and it is impossible to coordinate teaching with learning without using media.

Kineo (n/d.) pointed out some benefits of e-learning use compare to the traditional mode of classroom learning, namely: (a) it's what the learners want, (b) faster delivery, (c) low costl, (d) more effective learning, and (e) low environmental impact. On the benefits of e-learning, other source such as Epignosis Limited Liability Company (LLC) [2014] asserted as follows, "*E-learning offers the ability to share materials in all kinds of formats, such as videos, slideshows, word documents, and PDFs. Conducting webinars (live online classes) and communicating with professors via chat and message forums is also an option available to users....E-learning provides the learner with the ability to fit learning around their lifestyles, effectively allowing even the busiest person to further a career and gain new qualifications*" (p. 6).

The above quotation revealed to us two benefits of e-learning use, that are: (a) offers the ability to share materials in all kinds of format such as videos, slideshows, word documents, and PDFs; and (b) provides the learner with the ability to fit learning around their lifestyles, effectively allowing even the busiest person to further a career and gain new qualifications.

3. Methods of the Study

In this study we employed a quantitative approach using a survey design due to the following considerations: (a) high representativeness; (b) low cost; (c) convenient data gathering; (d) good statistical significance; (e) little researchers subjectivity; and (f) precise results.

One questionnaires consisted of ten items administered to 15 teachers of six selected elementary schools of Merauke district. Samples were drawn purposively based on the computer-user friendly. Employing a quantitative approach with a survey design, teachers' perceptions of the usability of the e-learning technology were explored and measured based the questionnaires.

Teachers' perceptions of the usability of the e-learning technology were measured by modifying Song's (2010) Online Survey Instruments into 10 positive statements which was distributed into three dimensions as follows: [a] the ease of use:comprised of 4 itrms (item no. 1 – 4) , [b] the content clarity: comprised of 3 items (item no. 5 – 7), and (c) the appearance and accessibility: comprised of 3 items (item no. 8 – 10). Response

option for these items were on a four point Likert's scale, namely 'Strongly Disagree' (SD = 1), 'Disagree' (D = 2), 'Agree' (A = 3) and 'Strongly Agree' (SA = 4). Sample of items include "I find the site easy to learn", "I find the site easy to navigate", "The site is clear and understandable", "The site conveys a sense of competency", "The site creates a positive experience for me". "The site has an attractive appearance", "The design is appropriate for the type of online learning site", "The site has a fast browsing speed".

Data were analyzed quantitatively using the Statistical Package for the Social Sciences (SPSS) version 16 for Windows. The descriptive data analysis was conducted by calculating means and standard deviations scores to describe teachers' perception of the usability of the online professional development enricment mode offered by team. We employed a Cronbach's alpha coeficient to test the internal reliability of this instrument. The internal consistency estimate of the usability of the online professional development enrichment mode was considered adequate as the Cronbach's alpha coeficient was 0.734.

4. Results of the Study

This study aimed at investigating elementary schools teachers' perception of the usability of the e-learning technology of high-level plants anatomy. As previously stated, quantitative data were analyzed descriptively using Statistical Package for the Social Sciences (SPSS) version 16 for windows. The means and standard deviations of the usability of the online professional development enrichment mode are shown in Table 1 below.

Aspects	N	Item Number	Mean	Std. Deviation	Minimum Score	Maximum Score
The Ease of the Use	15	4	54.7500	0.50000	54.00	55.00
The Content Clarity	15	3	56.6667	0.57735	56.00	57.00
The Appearance & Accessibility	15	3	52.0000	2.64575	49.00	54.00
General Usability	15	10	54.5000	2.32140	49.00	57.00

The results of data analysis as it was reflected in Table 1 revealed of how teachers percept the e-learning technology. As seen in Table 1, four different scores of means and standard deviations are calculated: general usability, the ease of the use, the content clarity, and the appearance and the accessibility of the e-learning technology. The highest mean score is of the content clarity of the e-learning technology, that is 56.6667 with the standard deviation of 0.57735. Whereas the lowest mean score is of the

appearance & accessibility of the e-learning technology, that is 52.0000 with the standard deviation of 2.64575. Meanwhile respondents response to the ease of the use of the e-learning technology which has a mean score of 54.7500 and the standard deviation of 0.50000 is at the second position. General mean of respondents response to the usability of the e-learning technology under consideration of this present study is 54.5000 with the standard deviation of 2.32140.

5. Discussion

Technology has become a major driving force in modern institutions as well as in the education institutions and e-learning has already been an outstanding approach to teaching and learning in todays schools based on the use of electronic media and devices. The present study attempted to investigate elementary school teachers' perception of the usability of the e-lerning technology offerred by the team. Descriptive statistics results showed that overall teachers in the sample are indeed agreeing that the e-learning technology offerred by the team is usable, as the general mean score of respondents response is 54.5000 with the standard deviation of 2.32140. As 'the contents clarity' (which comprised of three items, i.e. 'the site is clear and understandable', 'the site conveys a sense of competency', 'the site creates a positive experience for me') was responded positively at a mean score of 56.6667 with the standard deviation of 0.57735, it can be stated that teachers in the sample are also agreeing that the site offerred makes a sense of knowledge and skills of teaching.

Marzano et al. (2001), when conducting a meta-analysis on teaching practices, stated that the individual instructional strategies that a teacher uses has a powerful effect on students learning and, in turn, effect on students academic achivement. In this context of view e-learning technology, as an educational tool of teaching and learning, is not only help teachers greatly in their work of teaching but also plays an important role in their own learning. Therefore, elementary schools' teachers are really encouraged to take part in e-learning professional development to meet the demands of their future teaching (Vekiri & Chronaki, 2008).

6. Implications and Recommendation

Practical implication of this finding is that the school principals and the Head of Education Office at government level as well should motivate teachers to use the available e-learnng technology to deliver learning materials in order that students' motivation and stundents' academic achievement in sciences, especially in biology,

might be improved. Since the topic of this study is still lack in Indonesia context and has never been conducted in Merauke district, finding of this present study may theoretically add the existing literature on teachers' perception of the usability of the e-learning technology.

Our present study is limitted on the effort of investigating elementary schools teachers' perception of the e-learning technology offerred by the team. Therefore, a more study on the impact of the e-learning technology offerred on students motivation to learn biology and on the students' academic achievement are fully recommended.

7. Conclusion

This present study was conducted to describe teachers' perception of the e-learning technology offerred by the team. As the general mean score of descriptive data analysis is 54.5000 with the standard deviation of 2.32140, the conclusion depicted from the result of the study is that teachers in the sample are agreeing that the e-learning technology offered is usable for the teachers to deliver learning materials of high-level plants to their pupils. Since the highest mean of the responses' score was the content clarity of the e-learning technology (56.6667), it can be also concluded that teachers in the sample do really believe that the site offerred makes a sense of knowledge and skills of teaching.

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