

Reconstruction of Adaptive and Responsive Educators Levels in Utilizing E-Resource Digital Literacy in the Era of the Indonesian Revolution 4.0 Through E-Modules

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Abstract-*The life system in the era of industrial revolution 4.0 will be dominated by a digital system called IoT (Internet of Things). This change will certainly change the behavior of components in all fields including education. As the main actor in education, it is necessary to carry out adaptive and responsive level reconstruction movements of educators in utilizing IoT in the form of digital literacy in learning which is better known as cyber system. As the front guard, educators must rebuild competencies tailored to the era of education 4.0. From the case studies conducted, found in junior high school teachers in Solok City and elementary teachers throughout Bukittinggi City still have a low level of adaptive and negative responsiveness to the use of the internet in learning.*

Reconstructing adaptive levels and responsive educators to the use of digital literacy is certainly not an easy thing. Many problems are faced, given the growing mindset that concludes that the internet is one thing that can damage students. The main problem in reconstructing adaptive and responsive levels is that there are not many attempts to spread the true culture of digital literacy to educators and students. It needs appropriate strategies and quick steps to improve those views by involving institutions that have an important role in preparing quality digital literacy.

The Educational Technology Study Program is in line with the Professionals of Technology Developers Education can play an active role in reconstructing. One way that can be done is to provide service facilities in each group of educators to be able to take advantage of the right digital literacy. Exposure to clear steps in reconstructing to provide appropriate e-resources is one of the important tasks for study programs as part of UNP which has prepared itself to become a cyber system and become worldclass university. One of them is by developing e-modules that are in accordance with the needs of educational actors.

Keynote: Reconstruction, adaptive and responsive levels, internet of things, digital literacy, e-resources.

I. INTRODUCTION

Internet of Things is one of the activities that is common today in the life and culture of Indonesian society. The convenience obtained through the internet makes the development of internet usage very rapid. The use of the internet in Indonesia from the research results of the Indonesian Internet Service Providers Association in 2016 showed a significant increase of 132.7 million people or 51.8% of the total population of Indonesia. The opium taste felt by the Indonesian people with the Internet of Things can be seen from the frequency of use every day which recorded 37.7% of the total number of users using intensely or about 1 to 3 hours per day per person. The information that is opened most is social media such as Facebook, Instagram, Twitter, Line and WhatsApp, and entertainment media such as YouTube and online music, and the search engine that is most often used is Google Search.

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The problem that arises is the large increase in internet usage which is not in line with the understanding and mastery of digital literacy. So that people still trust the information disseminated through the internet is true without conducting the process of investigating the truth of the information.

The ease of access and the abundance of information that can be obtained on the one hand actually results in the education staff becoming less selective in choosing the source of information to be used. Based

on the WSIS Declaration 2003 text, Paragraph 1, it is said that everyone can create, access, use and share or share information and knowledge, with the consequence that everyone must be able to deal with and master information correctly. However, the ease of sharing and accessing digital information through the internet has resulted in a large number of irresponsible information circulating widely through various digital publication media such as blogs or wordpress which do not include clarity of information sources, and it turns out there are still many students and educators who use the information as referral of their duties even though on the internet also available digital information sources such as electronic access (e-resources) that are open access that can be accessed using personal computers, mainframes, or mobile devices remotely via the internet or intranet which consist of various types such as e- book, e-journal, full text database, database indexing and abstracting, e-images, e-audio, video, etc..

To overcome these conditions, special skills are needed known as literacy patterns. Furthermore, Miftah (2016) states that literacy patterns are forms or structures that occur in a continuous situation that is carried out by a group of people in conducting a series of learning starting from the stages of receiving and reading to the stages of creating. One type of literacy related to the special ability to use various information in digital format is digital literacy.

According to Paul Gilster (1997), digital literacy is defined as an ability to understand and use information in various forms of extensive resources that can be accessed through computer devices. Wilson in Yusup & Subekti (2010) states that in searching for information, individuals will interact or use a manual search system through textual media or using computer-based media (Yusup and Subekti, 2010).

E-module is one type of e-resources that can be accessed and displayed using computer-based media which is used as an alternative choice by students aside from information in textual media such as books. The use of e-modules is very useful for students and teachers, making the learning and teaching process more interesting, making it easier for students to obtain learning materials, if used by the teacher, the teacher can deliver material to students clearly and can help teachers when unable to attend material in the classroom as usual, can reduce a static atmosphere and can create an effective, interesting, interactive learning process and is expected to reduce student saturation in learning.

Analysis of the learning process by involving the Internet of Things that have been done by previous researchers, in this article will discuss the problems that affect the low absorption and responsiveness of students and teachers to the use of the internet. The benefit of this research is the answer to research questions regarding problems that occur in students and teachers in the use of the internet. This research continues on the development of e-modules in practical subjects that are valid, practical and meet practical standards. On the one hand the benefits of this research can later be referred to as how to process a message design in an e-module that can be e-resource in literacy digital students and teachers in learning.

II. METHOD

Research Development of e-modules with the Flippage Professional 3D application uses a model presented by Borg and Gall. The model presented by Borg and Gall in Emzir (2011) is simplified according to needs into five steps, namely:

1. Planning (field observations and preliminary studies)
2. Develop the initial product
3. Perform product validity (validity and revision)
4. Do limited trials.
5. Final product results

The research activity starts from a preliminary study of the problems of students and teachers in the use of the internet. Preliminary studies were analyzed by descriptive techniques. The variables in this development research are e-modules with the dependent variables are the results of media and material validation, as well as practicality tests. Data collection techniques in this study consisted of validity questionnaires and practical questionnaires.

In the aspect of development research, the validity test is intended to examine the extent to which the media developed is feasible to use, with aspects of consideration:

1. Completeness of material
2. Complete Additional Features
3. Complete Program
4. Complete curriculum (novrianti, 2016).

The steps taken after the validity test is a practicality test which aims to obtain data on the practicality of the product being developed. Whereas to measure the effectiveness of the use of learning programs can be done in two ways, namely by making direct observations during the use of the program by students in class scales or field tests, and conducting comparative test analysis on improving learning outcomes after using the program (Novrianti, 2016).

III. DEVELOPMENT RESULTS

The results of the development of e-module material consisting of 4 variables, namely design, appearance, and product clarity for the assessment of material validators, overall, the level of validation from material experts was valid with a mean score of 4.8 (96%) with the criteria "Very Well". Advice from material experts: the material is equipped with more examples, and the text in the material is tidied up again.

The results of the e-module media assessment consisting of 4 variables, namely product design, appearance and clarity for media validator assessment, as a whole, the initial level of validation from media experts was obtained with a mean score of 3.97 (79%) with the criteria "Good". Overall, the final level of validation from media experts is valid with a mean score of 4.6 (92%) with the criteria of "Very Good", so that it can be declared feasible as a medium to be tested.

Based on the results of the trials which included aspects of the display, presentation of material, usefulness, the results of the practicality of the media were obtained. Overall, the practicality of e-modules is 3.7 (92%) with the criteria "Very Practical".

IV. RESULT AND DISCUSSION

Phenomena such as the difficulty of finding factual references on the internet that occur in learning are influenced by several factors. Based on the results of observations and interviews, the first is the attractiveness of students to printed teaching materials. As with other lessons, practical subjects also have printed teaching materials developed by the teacher. Content is developed based on subject needs. The teaching materials are distributed to students in printed form and students reproduce according to their individual needs. Consideration of giving teaching materials in printed form refers to the results of research which concludes that reading printed material is more efficient than reading on a computer screen (Tuncer & Bahadir, 2014).

The second problem is motivation. Motivation includes internal and external motivation (Bahri, 2008). Internal motivation which is an encouragement from within the individual is low due to the ability of students and teachers who are low in understanding digital literacy. Whereas external motivation is influenced by the student's learning environment, starting from peers, learning offerings, getting addictions to gadgets and the internet.

The third problem found is the low digital literacy abilities of students and teachers in finding the right reference for learning eyes. Many of the references students get come from unofficial and unscientific websites, such as blogs, wordpress and wikipedia. One of the factors is of course there is still little e-resource that is in accordance with the competencies in the subject. So that it impacts on low correction on students and teachers' understanding of the theory. Many factors allow this to happen, including the lack of teachers who direct or even provide e-resources for students. The solution that can be done is to develop e-modules that can be accessed by students with the internet.

Research in Taiwan explores internet intellect among students in Taiwan (Chou & Hsiao, 2000). Researchers found that internet addiction occurred in students in Taiwan. The average student spends three times the time using the internet compared to non-addicts. Addicts spend more time on BBS, www, e-mail, and games. The same thing can happen to students in Indonesia. This combining group is dominated by teenagers because adolescents tend to find the internet as an entertainer, attractive, interactive, and satisfying.

The internet is indeed unavoidable from life today, especially students. Through the internet, basically students are able to develop their potential. But if there is no filter, various messages not relevant to learning activities tend to disrupt the learning process itself. Therefore, the internet not only has a negative impact, but also provides many benefits. Educators only need to direct students to be smart in using the internet and avoid students from internet addiction.

The fourth problem is the low adaptive and responsive teacher's tingakat in using the internet as a learning resource. This is factored because of the teacher's negative response to the effects of internet use for students. Teachers who have not been able to accept that everything can be known to students through the internet provide a view of teacher awareness. Of course this is the effect of easy access that is not in accordance with the norm and there is no direction and understanding of digital literacy.

Some learning innovations conducted by researchers are problem-oriented e-module development, knowing the effectiveness of using e-module in improving students' critical thinking skills and knowing students' responses to the use of e-modules in learning. Student responses to the use of e-modules in learning are very positive. The e-module that has been developed is able to improve the digital literacy of students who are more qualified, so that the references obtained by students are more accountable.

This also helps students have more quality and more scientific e-resources. Because e-resources found by students so far have mostly focused on the content of the material, not seeing the accountability of the

material obtained. This can illustrate that the high digital student literacy is not worth the high correction of e-resources in finding lecture material. With the existence of this e-module, there is a bit more accurate reference.

V. CONCLUSION

From the results of the e-module development research, it was found that the high dependence of students on digital information was very high. This is due to the low interest in reading textbooks to students, which is of course followed by several other problems. However, student dependence on digital information does not reflect good digital literacy, this is evident in students seeking references still using blogs, wordpress and wikipedia. Of course this habit provides a low correction of students' digital literacy.

An in-depth study is needed to improve student understanding in learning, one of which is by developing e-modules. E-modules can certainly be an e-resource for students where the level of addiction and the needs of students with the digital world. E-modules can reduce students' low correction of a reference, because e-modules have been made with all the rules of correct scientific writing. Based on the results of other studies stated that the basic ability of digital literacy has a significant relationship with the quality of the use of e-resources, with the low correlation category, meaning that with high basic digital literacy capabilities does not guarantee high quality e-resources use, because to obtain quality the use of high e-resources requires more complex digital literacy skills.

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