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The preliminary study in the development of e-Physics module integrated ethnoscience

Cici Dwi Tisa Haspen and Syafriani*

Departement of Physics, Faculty of Mathematics and Natural Sciences,
Universitas Negeri Padang, Jl. Prof Hamka, Padang 25131, Indonesia

*syafri@fmipa.unp.ac.id

Abstract. Purpose of curriculum 2013 is to demand aktif and independent student in learning. One effort that can be done by teacher is to make an e-modul. By combining technology into the module, it is expected to be able make student more motivated to study physics. In addition, curriculum 2013 also provides opportunities for student to learn through culture. One way to do this is by presenting learning resources (e-modules) with scientific knowledge that is integrated with the surrounding culture or ethnosciens . This research is a descriptive research. Data collection techniques were carried out using interviews and questionnaires. Based on the result of the analysis, it is necessary to develop an e-physics module integrated ethnosciense.

1. Introduction

In according with Government Regulation No. 32 of 2013, the curriculum developed in Indonesia is the 2013 curriculum. In 2019, almost all school have implemented the 2013 curriculum in learning. This 2013 curriculum requires students who are independent and active in learning. One such effort can be achieved by using innovative teaching materials.

Along with technological advances, education also cannot be separated from the important role of technology. Especially for the National Examination (UN) there have been 2 times the period of implementation of computer-based UN (IT). Therefore, combining technology with education will help educators and students not to be outdated on technological progress. One method that can be used is to use non-printed teaching materials. The teaching material that can be used is e-module. E-module is a non-printed teaching material that can be used to help the teaching and learning process. According to Saputro (2009) e-modules are digital modules and are packaged more interactively. As with modules, e-modules are believed to be able to help students learn actively and independently. These teaching materials can replace the role of educators in the classroom, so students can learn anywhere and anytime. The creation of creative and innovative e-modules is also able to arouse the enthusiasm of students. Because in the e-module, video, audio, and visual are available.

The 2013 curriculum also provides opportunities for students to learn from the culture and environment around them. The curriculum which is based on Indonesian culture and nation constitutes the 2013 curriculum philosophy foundation. Based on these statements, the curriculum provides opportunities for students to learn from local cultures and develop cultural values for



use in daily life (Rochmat and Majid, 2014). The fact that was met in the field, in physics learning there were still many students who did not understand the concept of physics. In fact, physics is the study of natural surroundings. By linking learning with culture and the surrounding environment, learning will be more easily understood by students. One effort that can be done is to integrate ethnosains in learning

Etnosains is an basic knowledge that is owned by the community about how people must understand and treat the nature in which they live. These knowledges eventually became culture. Original science knowledge is knowledge that is owned by the surrounding community. This knowledge comes from beliefs derived from the ancestors of the community. Culture in the South Coast region can be used and developed to develop teaching materials that are integrated with ethnosains. Learning to use e-modules with integrated ethnosains will make students more interested. This learning also aims to introduce to students that fact or phenomena that develop in society, can be associated with science (physics). So that students will be easier to understand learning, because students can see and fell directly.

2. Research Method

This study uses descriptive research methods. The study was conducted at SMAN 1 Ranah Pesisir by interviewing educators and distributing questionnaires to students. Sources and Methods Data collection includes observation techniques, interviews, and questionnaires. The study was conducted to find out the initial studies in the development e-module of physics integrated ethnosciens. To determine the results of observations in the initial research, the following competency levels are used:

Table 1. Descriptive Analysis of Observations

No.	Category	Value
1	Very good	$90 < N \leq 100$
2	Good	$75 < N \leq 90$
3	Less	$60 < N \leq 75$
4	Very less	≤ 60

Source: Kemendikbud (2013: 314)

3. Results and Discussion

Preliminary studies have been carried out on the development of ethnosciense integrated physics e-modules in the Pesisir selatan. This study focused on class X students. Preliminary analysis was conducted by interviewing physics subject educators who taught in class X high school.

The distribution of questionnaires was carried out for grade X students. The questionnaire distributed contained statements which became the benchmark in this preliminary study. The following are the results of research from the distribution of questionnaire given to the student. The question include several aspect, knowledge, skills, prelimenaru study, learning style, learning media, motivation.

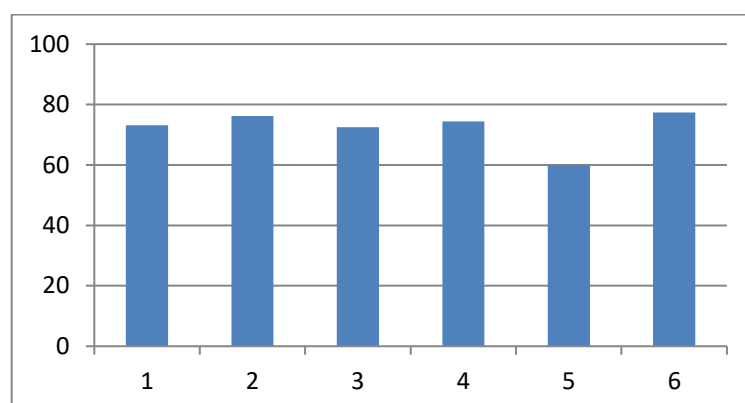


Figure 1. Percentase Results of Analysis of Student Questionnaire

Based on the graph 1, it can be concluded that students have the highest percentage in the aspect of learning motivation that is equal to 77.33%. while for the aspects of knowledge 73.10 %, skills 76.25 %, preliminary study 72.50 %, and learning styles 74.44 %. For the aspect of media, percentage is 60 % which is categorized as less. As in table 2

Table 2. Percentage of analysis of the six aspects tested

No	Aspect	Percentase %	Category
1	Knowledge	73.10 %	Less
2	Skill	76.25%	Good
3	Preliminary Study	72.50 %	Less
4	Style	74.44 %	Less
5	Media	60.00 %	Very Less
6	Motivation	77.33 %	Less

From the results of the six aspects in table 2, the average percentage is 72.27 % which is categorized as less. As for the factors that cause the quality of learning using media is very less because not yet the maximum use of technology for learning. Ang in addition, the teaching materials provided at school do not required students to be able to learn in thependently according to the curriculum 2013.

After conducting interviews and questionnaires, researchers conducted an analysis of the Class X High School Physics syllabus. The researcher conducted an analysis of KI (Core Competence) and KD (Basic Competence) which could be developed using integrated ethnosciense e-modules. From the results of the analysis, all the basic Physics Competencies found in Class X High School can be developed into ethnosciense integrated e-modules. In this preliminary study, researchers obtained a solution to develop an ethno-science integrated e-modul. By developing these products, it is expected that the problems found in educators and students can be overcome.

4. Conclusion

As a result of the above analysis needs, it is possible to integrate ethnosains into physics learning based on the 2013 curriculum. Further research is needed to develop teaching materials in the form of integrated e-modules in ethnosains.

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