Analysis of physics e-modules based on guided inquiry integrated with Quran knowledge

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Abstract. The era of Industrial Revolution 4.0 is an era where human life is always related to technology, including in the field of education. Every teacher is required to be adept at using information technology in the implementation of learning. One example of the use of technology by teachers is the use of electronic teaching materials. In addition to the use of technology, teachers also associate learning material with the Qur'an. So that students can understand learning not only from physical theory, but also from Islamic studies. Therefore, it is necessary to analyze the teaching materials used by the teacher in conducting learning in school. This research is a descriptive research. The method used is in the form of interviews and questionnaires for physics subject teachers and students. The results of the study show that the teaching materials used are still in the form of printed textbooks that are sold on the market and printed modules prepared by the teacher. The modules compiled by the teacher have not yet used the learning model so that they have not been able to guide students to be able to learn independently from the module. The module also has not linked physics, material with the insights of the Qur'an. So it is necessary to develop a guided inquiry-based physics e-module integrated in the Qur'an.

1. Introduction
The era of Industrial Revolution 4.0 was an era where there were major changes in the industrial sector. We can see today where information and communication technology is utilized almost entirely on the lines of human life. This era of the industrial revolution was also known as the digital revolution and the era of disruption. The term disruption in Indonesian is extracted from its roots. According to Kasali, disruption is defined as innovation [1]. From the term above, disruption can be interpreted as fundamental or fundamental innovation. In the era of the industrial revolution 4.0 things happened to be limitless through unlimited computing and data technology, this happened because it was influenced by the development of massive internet and digital technology as the connectivity of humans and machines. This area will also disrupt various human activities, including the fields of science and technology (science and technology) and higher education [2].

In the current era of disruption, the world of education is required to prepare the students with 21st century skills (21st Century Skills). These skills are the skills of students who are able to think critically and solve problems, creative and innovative as well as communication and collaboration skills. In addition, the skills to find, manage and deliver information and skilled use information and technology. Some of the capabilities that must be possessed in the 21st century include: Leadership, Digital Literacy, Communication, Emotional Intelligence, Entrepreneurship, Global Citizenship, Problem Solving,
Team-working [2]. Three Issues of Education in Indonesia today Character education, vocational education, innovation.

Teachers and lecturers must also be prepared to face these skills. Teachers must also have strong core competencies and have soft skills, including: Critical thinking, creative, communicative, and collaborative. The teacher's role as a role model, passionate and inspirational. To carry out learning in accordance with the demands of the 4.0 industrial revolution, teachers must prepare creative teaching materials. One teaching material that can be used by teachers in learning is a module. According to Andi, the module is a teaching material that is arranged systematically with a language that is easily understood by students according to their level of knowledge and age, so that they can learn independently [3]. In making a module, educators must also pay attention to what learning models will be used.

One constructive learning model is the inquiry learning model. In this model, it is expected that students can be actively involved in thinking and finding their own understanding that they want to know. In this model, students are involved in the discovery process through data collection and hypothesis. Knowledge and skills obtained by students obtained from their own findings are not the result of remembering facts and formulas. Inquiry-based learning engages students in developing knowledge, skills, and understanding of physics concepts. Inquiry learning is divided into two types, namely guided inquiry and free inquiry. The difference is only in how much the educator intervenes in the education process carried out by students.

Guided inquiry learning is a process of knowledge gained by students to be meaningful through thinking skills. According to Mathew, this learning method allows students to move step by step in identifying problems, formulating problems, making hypotheses, collecting data, and analyzing data and drawing conclusions. But in fact, the teaching materials used in the current learning, there are no module teaching materials that are in accordance with what is required. So that the modules that have been there so far have not been able to fulfill the requirements as a good teaching material.

2. Methods
This type of research is descriptive research, namely by analyzing and presenting facts systematically so that it is easier to understand and conclude [4]. Sugiyono stated that descriptive method is a method used to describe analyze a research result [5]. All samples in this research were taken from 30 people in 10th grade and 2 physics subject teachers at SMAN 2 Padang Panjang. The instruments used to collect data were questionnaires and interview sheets. Questionnaires were given to students and interview sheets were given to physics teachers. The scale used in the questionnaire is a Likert scale consisting of 4 answer choices.

To get the value of each statement on the questionnaire, obtained by using the formula [6]:

\[
value = \frac{g_{\text{gathered score}}}{m_{\text{ax score}}} \times 100\%
\]  

(1)

And for the assessment categories from this analysis we can see in Table 1. [6]

| No | Observation Value | Category     |
|----|-------------------|--------------|
| 1. | 91 – 100          | Very Good    |
| 2. | 76 – 90           | Good         |
| 3. | 61 – 75           | Less         |
| 4. | \(\leq 60\)       | Very Less    |
3. Results and Discussion

From this research, the result is the percentage of student analysis and analysis of teacher teaching materials used in class X MIA at SMAN 2 Padang Panjang. The existing analysis is the whole of the analysis of students, analysis of teacher teaching materials and analysis of learning activities.

3.1 Analysis of Students

From the data collected from the questionnaire given, it can be explained that the teaching materials commonly used by educators in learning, namely in the form of modules, have not been able to improve student’s critical thinking analysis even though the learning outcomes are good enough. Students were not able to solve a problem using a scientific approach. Even students are still difficult to connect the content of the verses of the Qur'an with physics lessons.

3.2 Analysis of Teacher Teaching Materials

The instrument used for the analysis of teacher teaching materials is in the form of interview sheets. From the interview sheet given to the teacher, it was found that the teaching material used by the teacher had been a physics module made by the teacher. But the elements of a module have not been fulfilled. The modules are only in the form of material, presentations and sample questions. So that the module used has not been able to improve the ability of students to find their own knowledge that they want to get. The module used is still a print module.

3.3 Analysis of Learning Activities

In the learning process, it was found that students had done more learning, but was still in the teacher's control. From the results of the observations it was found that smart students were more dominating learning than middle students. So that middle students tends to get bored with the learning given.

4. Conclusion

From some descriptions of the explanation above, the author feels the need to develop a physics teaching material in the form of e-modules based on guided inquiry learning models and equipped with integration of Qur'an knowledge in class X. Because the modules used do not meet the requirements of a module should. The students' critical thinking analysis, ability is still low. As well as the students' knowledge about the relation between the content of the verses of the Qur'an and the physical body is still very low.

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