Developing E-Module Based on Islamic Values

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Abstract: Very few studies have examined the use of e-module that develops Islamic values accompanied by an animated display of chemical processes. Thus, it is important to develop such module as an effort to form a character in learning chemistry. The purpose of this research is to describe e-module validation results as teaching material to develop Islamic values. E-module is developed using Research and development method with ADDIE model. Validation is done by three experts on the aspects of learning and development of Islamic values by filling out validation form in the form of comments, suggestions and simultaneously giving score for every aspect. Aspects of learning and Islamic values on E-Module have presentations of 78% and 85% respectively so that all aspects are declared valid. E-Module that has been prepared is feasible to be used to develop Islamic values in chemistry learning. The development of this module is expected to support the process of character formation of learners through the learning of chemistry.

1 INTRODUCTION

Learning activities carried out in the classroom need teaching materials as a tool to support the learning process. The teaching materials used so far only contain contents to master the knowledge and skills only and have not provided good values of attitudes in order to prepare learners thoroughly (Anggela and Darvina, 2013). For example, chemical modules in addition to discussing corrosion material as part of electrochemistry also discusses the concept of corrosion associated with Qur'anic verses that through the story of Zulkarnain which is chanted in Surah al-Kahf. Through the integration of chemistry and Qur'anic verses it is also expected that the values of character can be formed, such as religious, curiosity, communicative, cooperation and responsibility in the story of Zulkarnain and can be instilled to the students. Al-Qur'an is loaded with the concept of science and moral values contained therein. Al-Quran is very relevant to be used as a reference in character building, especially on the younger generation (Nugroho, 2008).

The development in technology has encouraged the integration of printing technology with computer technology in learning activities, such as the development of printed media or module. The module is a specially designed learning unit used by learners without teacher attendance (Smaldino, 2008). As the development of technology, module is also transformed into a more practical form of electronics called as electronic module or e-module. Thus, the e-module is a learning unit, where each learning activity is provided with links as navigation that makes learners become more interactive, equipped with video and animation presentation to enrich the learning experience (Borcheres, 1999).

Relevant research on learning to develop Islamic values has been done by Subarkah et al (2016). The result of research shows the aspects of values of Islamic character in learning appear in learning. But this research has not developed teaching materials using e-module or other electronic media. Therefore, this study aims to develop teaching materials in the form of e-learning modules that are integrated with character education that is filled with Islamic values. The purpose of this research is to develop a teaching material in the form of e-module that contains Islamic values that can be implemented in the lives of learners. The method used in this research is research development or Research and Development (R and D) with ADDIE-Model. The ADDIE-Model is an instructional design development model consisting of five stages: (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation (Dick and Carey, 2010); (Gall, Borg, and Gall, 2007).

2 METHODS

2.1 The Development Steps

The development steps undertaken with the ADDIE model are as follows:

2.1.1 Analysis

This stage includes the analysis of the problem of the importance of electronic materials that develop Islamic values, the determination of the material based on syllabus of basic chemistry course II, concept mapping and concept analysis, discourse analysis, learning objectives analysis, media resource collection and software selection used.

Topics about corrosion used as a learning medium because corrosion is one of the concepts studied in the basic chemistry course II. In addition, this material is a phenomenon that is very close to everyday life so that students can train the sensitivity on the environment. This phenomenon is also related to the content of Surah al-Kahf verses 83-98. At this stage the analysis is also done on the content of Al-Kahf verses 83-98 by reviewing various interpretations to explore the values of Islamic characters contained in the verse.

2.1.2 Design

After the analysis phase, the e-module development stage is done. This stage includes the collection of materials and various media required such as pictures, graphics, video, audio and others. At this stage making flow charts and storyboard was first done. The design development step follows the flow chart and storyboard workflow.

2.1.3 Development

At this stage, e-Modules are developed based on the designs that have been made.

2.1.4 Implementation

Prior to implementation, the e-module is validated. Respondents for this validity testing consisted of three experts: chemistry experts, learning media experts and electronic media experts. This activity is conducted to review the initial product that has been developed and to get suggestions of improvement before the product is tested to the students.

2.1.5 Evaluation

Based on suggestions and validation results, an improvement on the e-module was developed.

2.2 Data Analysis

The data are obtained in the form of quantitative data in the form of numbers and qualitative data expressed in words or symbols. Quantitative data were analyzed using a five-digit Likert scale. Likert scale questionnaire results are processed by counting the checked column, then multiplying the frequency in each column with the corresponding column values. The quality of the module is expressed by the value calculated by the following formula:

$$Value = \frac{\sum Validator\ scores}{\sum items}$$

The classification of module validity can be seen in the following table:

Table 1: The interpretation of validation results.

Score	Validity Levels
>4.2 s/d 5.0	Highly Valid
>3.4 s/d 4.2	Valid
>2.6 s/d 3.4	Less Valid
>1.8 s/d 2.6	Invalid
>1.0 s/d 1.8	Highly Invalid

(Sunaringtyas et al., 2015)

Then the value of the validity is obtained by the following equation:

$$\%\ validity = \frac{average\ score}{highest\ score} x100\%$$

3 RESULTS

The results of the validity test in learning aspect can be seen in Table 2.

Table 2: The results of validation of learning aspects of electronic corrosion module.

Statement	Average score			Aver age	Result
	V1	V2	V3		
Ease of learning material	3.0	4.0	4.0	3.7	Valid
Clarity of learning objectives to be achieved	4.0	4.0	4.0	4.0	Valid
The suitability of video content, images and other	3.9	4.0	4.1	4.0	Valid

Statement	Average score			Aver age	Result
	V1	V2	V3		
media with the concept discussed					
Overall average				3.9	
Validity in percentage				78%	

Note:
V1 is validator 1 (Professor in Chemistry Learning)
V2 is validator 2 (an expert in Media)
V3 is validator 3 (an IT expert)

The next aspect is the aspect of Islamic values in the module. This aspect is an aspect that characterizes the created e-module that is the integration of learning materials discussed with the verses contained in the Qur'an. Validation results in this aspect can be seen in Table 3 below:

Table 3: The Results of Validation on Islamic Values in E-module.

Statement	Average Score			Aver age	Result
	V1	V2	V3		
Contains Qur'anic verses that correspond to Zulkarnain's story and corrosion material content	5.0	4.0	4.0	4.3	Highly valid
Interesting presentation of the story	5.0	4.0	4.0	4.3	Highly valid
Ease of understanding the content of the story	5.0	4.0	4.0	4.3	Highly valid
Religious character values in the story	4.0	4.0	5.0	4.3	Highly valid
Promoting the character value of curiosity in the story	5.0	3.0	4.0	4.0	Valid
Promoting the character value of communicative in the story	5.0	4.0	4.0	4.3	Highly valid
Promoting the character value of cooperation in the story	5.0	4.0	4.0	4.3	Highly valid
Promoting the character value of modesty in the story	5.0	4.0	4.0	4.3	Highly valid

Statement	Average Score			Aver age	Result
	V1	V2	V3		
Linking Zulkarnain's story with daily life	5.0	4.0	4.0	4.3	Highly valid
Liking the Zulkarnain's story with the topic of corrosion	5.0	4.0	4.0	4.3	Highly valid
Overall average				4.27	
Validity in percentage				85%	

Note:
V1 is validator 1 (Professor in Chemistry Learning)
V2 is validator 2 (an expert in Media)
V3 is validator 3 (an IT expert)

4 DISCUSSION

EE-module is a source and learning media that facilitates self-study. The advantages of E-module compared to the print module are interactive, easy to navigate, allowing to display various media such as pictures, audio, video and animation and equipped with tests / quizzes that allow direct feedback (Pekdag, 2010). Based on the capability that e-module can facilitate as a supporter in learning, the development of e-module that contains Islamic values.

The quality of the module is determined based on the validation conducted by three experts such as chemistry learning experts, media experts and information technology experts. There are two validated aspects of learning aspects and aspects of Islamic values contained in the module. The quality of the module is determined by the combined score of both aspects.

In the learning aspect, table 2 shows the percentage of validation on this aspect of 78%. Based on this, it can be seen that all aspects of learning in this electronic module has been valid so it is worthy to be used as a medium of learning.

Table 3 shows the percentage of validation on the aspect of values of 85%. This shows that all aspects of Islamic values in the module have been valid. The pages in the module containing the verses of the Qur'an, stories, wisdom and relationships with learned concepts have been worthy of use as a medium of learning. The story relation with character values and corrosion material has also been valid so that the module is feasible to be used as instructional media in order to assist the educator in developing the students' character values. At the college level to high school level the learners are more sensitive and caring

about ethical questions based on examples of certain stories they have heard or learned (Lickona, 2013).

The Qur'an contains concepts and moral values that are very relevant to serve as a reference in character building. This is very reasonable because the Qur'an proved to have changed the character of Arabs. The character of society that was originally colored with various deviations transformed into a civilized society (Rahman and Kasim, 2014). One of the stories in the Qur'an that is full of moral values and character is contained in the story of Zulkarnain in Surah al-Kahf verses 83-98. In addition, the story also contains a concept of science studied in electrochemistry.

Chemistry subjects contain many values of order that lead to the exaltation of Allah SWT. If the chemical phenomenon is dug deeper and accompanied by the Qur'anic verses that explain it, it will get religious values that can be used as the foundation of character development in learning. Based on the studies that have been done, Islamic values are raised based on the story of Zulkarnain in the Qur'an QS. Al-Kahf is religious, curiosity, cooperation, responsibility and communicative. The e-module also designed an attitude assessment that measures the five characters so that learners can measure the extent to which the characters appear in their moral judgment.

In fi zhilalil Qur'an (Quthb, 2003), Qutb puts forward the story of Zulkarnain describing his character. The characters that Zulkarnain raises in his story can be inspired in shaping the character of the learner. More specifically, details of the religious character and other characters in the story can be seen in Table 4 below:

Table 4: The Content of Zulkarnain's Story and Character Maker Values.

Content in the Story	Character Values
Dzulkarnain is *tawadhu* and humble with his intelligence and power.	Religious
Ecrets of the strength of iron walls artificial Zulkarnain copper is revealed after the knowledge of electrochemical reactions, namely copper that can protect the iron due to the standard reduction potential. This led to Zulkarnain's fortress being more protected. This story proves that Iskandar Zulkarnain was a king who liked science.	Curiosity
Zulkarnain led the construction of a fortress by cooperating in its manufacture in an effort to avoid the damage caused by Yakujuj and Makjuj.	Cooperation
As a leader, Zulkarnain carries out his responsibilities in leading and working.	Responsibility
Zulkarnain always convey the command of Allah in a wise and diplomatic way.	Communicative

(Subarkah, CZ., Rahmawati, and Dalli, 2016)

Based on the table, there is a correlation between corrosion material in chemistry learning with Islamic character-forming values in Zulkarnain's story. Thus the chemistry concepts studied can be integrated with Islamic values in the Qur'an.

There is a relationship between academic achievement and character education (Benninga, 2003). Some American schools that have conducted character education programs show that the achievement of students' academic achievement is relatively increasing. Therefore, the effort to integrate the values of the characters with the material studied is very relevant as an effort to improve the academic achievement of learners.

Developed modules are integrated with the character values so that learners not only master the material in cognitive level only but have character values so that the development of this module is expected to support the process of character formation of learners through learning chemistry.

5 CONCLUSION

Based on the result of the research, it can be concluded that the E-Module that has been arranged is proper to be used to develop Islamic values in chemistry learning. The developed characters are religious, curiosity, cooperation, responsibility and communicative.

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