

Development of Biology Learning Module Nuanced Quran in Learning Material of Coordination System for Islamic Senior High School Students

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Abstract - Based on interview done in Islamic Senior High School, it is known that students used learning materials in form of handbooks and worksheets as sources in learning process. In fact, there are some weaknesses in using students' handbooks and worksheet in learning, such as learning materials do not complete, pictures are not clear, colors are not interesting, and there is no religious knowledge in the learning materials so that learning process is not really meaningful for students. Besides that, teacher explains lesson in long time so that students' worksheets cannot be applied maximally. As a result, students cannot develop their competences so that it will influence their learning outcomes. To handle these problems, it needs to develop Biology module nuanced Quran which will be used in learning. The purpose of this research was to explain validity and practicality criteria of Biology module nuanced Quran for grade XI Islamic Senior High School students.

It was a developmental research by using Plomp model. This model consists of three phases, which are preliminary research phase, development or prototype phase, and assessment phase. Instrument used was worksheet validity sheet. Next, Biology module nuanced Quran was validated by 3 experts and 1 teacher. Finding showed that the scores of didactic aspect was 95.31%, construct/content aspect was 82.81%, and technical aspect was 87.50%. They were in very valid criteria. In short, it can be concluded that Biology module nuanced Quran was in very valid criteria so that it is appropriate to use in learning process and it is also expected to improve students' learning achievements.

Keywords - Module, Quran, Validity.

I. INTRODUCTION

In line with advance development of science and technology, there are some changes in society, like in social, economic and culture. The society's demands and needs of education is a challenge for educational institution to give answers or solutions to changes happen in society. Based on the fact, there are some efforts that should be done comprehensively to improve educational qualities. One of them is to develop Indonesian human resources, related to moral, ethics, values, knowledge, health, skills, and arts, including in Islamic school.

In line with educational curriculum updates, something that should be prepared is improvement of learning quality, including Biology learning quality. Learning in school should be meaningful, which involves students actively in mastering learning materials. Therefore, students' involvement is important in learning in the classroom. By

involving them actively, they will get experiences in learning so that it become more impressed and memorable for students.

Based on the result of interview to some students in Islamic Senior High School, there was no learning material used by teachers which contain religious knowledge inside it, especially in Biology learning materials, such as systems in human body and they felt difficult to understand materials.

There are some factors influences learning outcomes. They are learning difficulties and students' intelligence. If students feel difficult in learning, they will get low comprehension in the materials learning. Besides that, every student has difference intelligence levels. These differences are called multiple intelligences (Gadner, 2011). To support it, it needs appropriate strategies and learning materials that can make students involve actively in order to make learning more meaningful and develop various intelligent potentials in

them. So, it can improve students' learning outcomes in cognitive, affective and psychomotor domain competences. One of learning materials that can facilitate students to develop various intelligences is a module integrated Quran verses in it. According to Santyasa (2009), module is a learning material delivering system selected to develop educational system efficiently, relevantly and effectively.

In developing a module, it should be considered some components in arranging it. According to Syarifudin (2010), there are some components that should be considered in arranging learning modulus. They are teachers' guidelines, students' worksheets, key of worksheets, test papers and key of test papers.

Based on observation and interview done on 20th April 2017 in MAN 1 and 2 Tanah Datar, it was obtained that students used learning materials in form of handbook and worksheets in learning process. From the available learning sources, students were still difficult to understand learning materials if teacher did not explain the lesson and relate learning materials to Quran verses. Besides that, religious values and Quran did not use to support learning materials so that learning process becomes not really meaningful. Meanwhile, students' worksheets did not have material explanation so that students were difficult in learning. Moreover, in doing worksheet, teacher still explained the lesson so that application of students' worksheets cannot run optimally and students' opportunity to do discussion is very rare.

Based on the problems above, module containing religious knowledge should be developed and used learning process, especially for Islamic Senior High School students. In addition to gaining learning materials, students will get Islamic knowledge and know relationship between Biology, Quran and religious values (Nurhafizah, 2015).

In order to make learning module proper to use, it needs to be validated. According to Thompson (2013), validity means an integral evaluative assessment to know to what extends the empirical evidence and theoretical reason that support compatibility of conclusion and action based on the scores or other measurement methods. In other words, validity is to what extends an instrument measures what should be measured. Meanwhile, Arikunto (2012) proposed that data are valid if they give good and appropriate description of product objectives.

Based on the problem above, it was needed to do a research entitled "Development of Biology learning module nuanced Quran in learning material of coordination system for XI grade Islamic Senior High School students".

II. REVIEW OF RELATED LITERATURES

A. Validity

Validity means as to what extent an instrument can measure what should be measured. Validity requires reliable instruments (Kimberlin and Winterstein, 2008). In addition, Messick (1989) also stated that validity is integrated evaluative assessment to what extent empirical proofs and theoretical reasons support adequacy between conclusion and action based on test scores or way of measurement.

Validity testing can be done by some methods. One of them is through validity components. According to Depdiknas (2008), generally, validity components in learning material development assessed by experts are content components, linguistic components, presentation components and graphic components. Assessment of content components is a validity assessment of contents or materials of learning sources. In line with Depdiknas (2008), which stated that content components in validity assessment include compatibility with core competence (KI) and basic competence (KD), compatibility with students' development, compatibility with learning material needs, reliability of learning material substance, benefit to increase knowledge, and compatibility with moral and social values. It means that validity of a learning material seen from its content must be suitable with some analysis, such as core competence (KI) analysis, basic competence (KD) analysis, need analysis, substance reliability analysis, benefit analysis, and moral and social values analysis.

Meanwhile, linguistic components include readability, clarity of information, compatibility with good and right Indonesian rules, language utilization effectively and efficiently. In addition, presentation components include clarity of learning objectives, presentation orders, giving students' motivation, attraction and interaction, and information completeness. Moreover, graphic components include the use of fonts, font size, layout, illustration, pictures, photos and design.

B. Learning Materials (Module)

Learning material is a set of materials arranged systematically which are used to help teachers/ instructors in learning process and enable students to study (Direktorat Pembina SMA, 2010). Based on technology used, learning materials can be categorized into five groups, which are printed, audio, video, audiovisual and multimedia learning materials. The printed material includes handouts, books, modules, posters, brochures, students' worksheets, wallcharts, photos, pictures and leaflets.

Module is “an independent complete unit of learning series which is arranged to help students achieve some formulated purposes clearly” (Darwyan, 2010). According to Syarifudin (2010), there are some components that should be considered in arranging learning modulus. They are teachers’ guidelines, students’ worksheets, key of worksheets, test papers and key of test papers.

In addition, purposes of module learning are 1) students can learn in their own learning strategies, 2) students have opportunity to learn according to their own learning speed, 3) students can select their own learning topics because they have different preferences, 4) students have opportunity to know their own strength through remedial programs (Sabiri, 2010).

C. Learning Nuanced Quran

Nuanced Quran means a set of thoughts based on Quran and indicates some transformations of Quran values through systematic learning process in order to prepare students to face their futures, in this world or after world. According to Law No 20/2003 about national education, which stated that “education is conscious and well-planned effort in creating a learning environment and learning process so that learners will be able to develop their full potential for acquiring spiritual and religious strength, develop self-control, personality, intelligence, morals and noble character and skills that one needs for him/herself, for the community, for the nation, and for the states”. Considering of that, purpose of religion education is to create a religious community, where deep, extensive and even critical understanding of religion is nurtured. Beside that, it is expected to transform a students’ behavior and to build his or her character into a religious one, includes in science.

III. RESEARCH METHOD

It was a developmental research using Plomp model. This model consists of three phases, which are preliminary research phase, development or prototype phase, and assessment phase. Instrument used was worksheet validity sheet. It used to measure the developed product. Next, Biology module nuanced Quran was validated by 3 experts in related fields and 1 teacher. Result of assessment was used to revise the module so that it fulfils users’ needs. The experts’ validity instruments are as follow:

VALIDITY SHEETS OF BIOLOGY MODULE NUANCED QURAN

A. DIDACTIC ASPECTS

No	Assessed Indicators	Scores			
		1	2	3	4
		VD A	DA	A	VA
DIDACTIC ASPECTS					
1.	Biology module nuanced Quran is suitable with Core Competence (KI), Basic Competence (KD), indicators and learning objectives in the 2013 Curriculum.				
2.	Learning materials is suitable with indicators.				
3.	Biology module nuanced Quran facilitates in problem-solving activities.				
4.	Biology module nuanced Quran can increase students’ activeness in learning.				

B. CONSTRUCT/ CONTENT ASPECTS

No	Assessed Indicators	Scores			
		1	2	3	4
		VD A	DA	A	VA
2. CONSTRUCT/ CONTENT ASPECTS					
1.	Activities in Biology module are suitable with learning syntaxes in module production.				
2.	Biology module nuanced Quran has manual user.				
3.	There is material summary in Biology module nuanced				

	Quran.				
4.	Available materials in module support tests and evaluation.				
5.	Biology module nuanced Quran can facilitate students' understanding and problem-solving.				

Table 1. Criteria of Validity Levels

Scores (%)	Categories
0-20	Very Invalid
21-40	Invalid
41-60	Valid Enough
61-80	Valid
81-100	Very Valid

Modified from Riduwan (2009)

C. TECHNICAL ASPECTS

No	Assessed Indicators	Scores			
		1	2	3	4
		VD A	DA	A	VA
3.	PRESENTATION ASPECTS				
1.	Cover of Biology module nuanced Quran is interesting.				
2.	Layout design of module is interesting.				
3.	Picture presentation in module is appropriate.				
4.	Fonts and font size are clear and readable.				

In this research, data were validity results of Biology module nuanced Quran the data of module validity were in form of likert scale 1-4 with rules like below:

- Very Agree (VA) with score 4
- Agree (A) with score 3
- Disagree (DA) with score 2
- Very Disagree (VD) with score 1

Then, result of scoring was tabulated and percentage by using the following formula.

$$\text{validity score} = \frac{\text{obtained score}}{\text{maximum score}} \times 100\%$$

Based on the validity score, validity criteria of Biology module nuanced Quran was determined with rule as in table 1 below.

IV. FINDINGS

A. DIDACTIC ASPECTS

Indicators	Validator Assessment				Average	%	Description
	1	2	3	4			
	Didactic Aspects						
1.	4	4	4	4	3.81	95.31	Very Valid
2.	4	4	4	4			
3.	3	3	4	4			
4.	3	4	4	4			

B. CONSTRUCT/ CONTENT ASPECTS

Indicators	Validator Assessment					Average	%	Description
	1	2	4	5				
	Construct/ Content Aspects							
1.	3	4	4	3	4.12	82.81	Very Valid	
2.	3	4	3	3				
3.	3	3	3	4				
4.	3	3	3	4				
5.	3	4	3	3				

C. TECHNICAL ASPECTS

Indicators	Validator Assessment				Average	%	Description
	1	2	3	4			
	Technical Aspects						
1.	3	4	4	3	3.5	87.5	Very Valid
2.	3	4	4	4			
3.	3	4	4	3			
4.	3	4	4	4			

V. DISCUSSION

Validity of Biology module included three aspects, which were didactic, construct/content and technical aspects. It was validated by 3 experts, who were Dr. Darmansyah, ST, M.Pd as a technologist, Dr. Abdurrahman, M.Pd as a linguist, Yarma, S.Ag MA as religion material expert, and Rosmawilis, S.Pd as material validator from MAN 2 Tanah Datar. Overall, validity assessment done by experts got score in very valid category.

Score of didactic aspect from Biology learning module nuanced Quran was 95.31%, which was in very valid criteria. It is caused by developed Biology learning module nuanced Quran is suitable with Core Competence (KI), Basic Competence (KD) in the 2013 curriculum. The module can increase students' activeness in learning process. It is in line with Hamzah (2015), who stated that generally, Natural Science (IPA) material delivering is only focused on one aspect, which is cognitive aspect so that students just get knowledge without moral values from learning IPA as a form of verses of God. However, learning IPA should be related to Quran verses in order to make it more meaningful.

In addition, score of construct/content aspect was 82.81%, which was in very valid criteria. It is caused by Biology learning module nuanced Quran has manual user and material summaries. Then, materials in module support tests and evaluation. It is in line with Darwyan (2010), who stated that there are some advantages of learning by using module system, as follow: 1) it enables students to learn actively, 2) it has clear objectives for every smallest unit of learning materials, 3) it uses multimedia and multi-methods appropriate with material needs and students' differences, 4) it enables students to participate actively in whole learning process, 5) it has components that enable students to know directly whether they can learn next material or stay learning the same material, and 6) it enables the implementation of learning principles and advance curriculum administration optimally.

Meanwhile, score of technical aspect was 87.50%, which was in very valid category. It is caused by Biology learning module nuanced Quran uses appropriate and readable fonts and font size. Besides that, its layout and design are interesting. Moreover, it has interesting pictures although its size is too big. Then, its design and color composition is also attractive. It is in line with Putri and Mitarlis (2015), who stated that learning materials can attract and motivate students because the materials use fonts, colors, and pictures suitable with presented materials so that the materials can help students understand and interested in learning it.

Overall, the developed Biology learning module nuanced Quran has very valid criteria so that it can be used to the next stage. Sudjana (2004) proposed that validity is regarding with the accuracy of instruments towards assessed concepts so that it can measure what should be measured. Besides that, according to Kimberlin and Winterstein (2008), validity defines as to what extent an instrument can measure what should be measured. Moreover, validity needs reliable instruments.

VI. CONCLUSION

Based on research finding and discussion above, the developed Biology module nuanced Quran has very valid criteria in didactic, construct/ content and technical aspects. It means that the Biology model nuanced Quran can be used as learning materials to help teacher and students to understand lessons and achieve learning objectives in order to improve students' learning outcomes.

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