

E-Modules Development with Al-Qur'an Integration Scientific Approach Based on 3D Pageflip Professional in Biochemistry Course

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Abstract—Biochemistry was the study of the structure and function of cellular components, such as proteins, carbohydrates, lipids, nucleic acids, and other biomolecules. Today, biochemistry courses focus more specifically on the chemistry of enzyme-mediated reactions and protein properties. Therefore it was very relevant if taught by incorporating the values contained in the Qur'an as reinforcement of the explanations that have been discovered by expert. The modules developed in this study were electronic modules. The research design model used in the research and development of biochemical e-modules was the ADDIE development model, namely analysis, design, development, implementation, and evaluating. This e-module is created using professional 3D pageplif software. This e-Module has been validated by experts to validate the media and e-module content. While the average results of students' perceptions for the appearance, presentation of material and the usefulness of e-modules were respectively 91.41%, 84.68% and 91.82% with categories very good.

Keywords: e-modules, biochemistry courses, 3D pageflip professional

I. INTRODUCTION

SulthanThahaSaifuddin Jambi State Islamic University (UIN) was the only public Islamic university in Jambi Province. This makes UIN expected to be able to produce good quality students in the academic field and in the Islamic sciences. Therefore, in the learning process that occurs in the classroom, it is expected that lecturers were able to integrate Islamic values into the subjects they taught. Learning was a series of efforts made by educators to improve the ability of students in the teaching-learning process. The curriculum as the main system in regulating the learning process was very important in achieving the expected learning goals.

Biochemistry is the study of the structure and function of cellular components, such as proteins, carbohydrates, lipids, nucleic acids, and other biomolecules. Today biochemistry is more specifically focused on chemical enzyme-mediated reactions and protein properties. Therefore it is very relevant to be taught by including the values contained in the qur'an as an reinforcement of the explanations that have been discovered by experts.

Views / theories about learning will determine how it should create learning itself (the learning process). Implementation of the learning process generally occurs in certain classes and sometimes boring for students. For this reason, an educator or teacher is required to be more professional so that it can make learning fun. For a better learning process, teachers are also required to be able to determine models, methods or approaches as well as appropriate learning media in the teaching-learning process in the classroom [1,2].

Good learning media will influenced the teacher in making learning media that was suitable in every teaching-learning process in the classroom[3]. Learning media to integrate biochemical content produced by experts with an understanding of the Islamic values contained in the Qur'an can be through the media in the form of e-modules in learning. One of the software that can be used in making e-modules was 3D professional page flip [4,5]. The problems of learning media as explained above inspire the heart of the author to conduct research on the Development of E-Modules with Scientific Approaches Integrated Al-Qur'an based on 3D Pageflip Professional on biochemistry content.

II. METHOD

This research classified as research and development. The research design model used in e-module research and development was the ADDIE development model. ADDIE stands for analysis, design, development, implementation, and evaluate. The chart of the ADDIE development flow according to Branch (2009) in Figure 1 below:

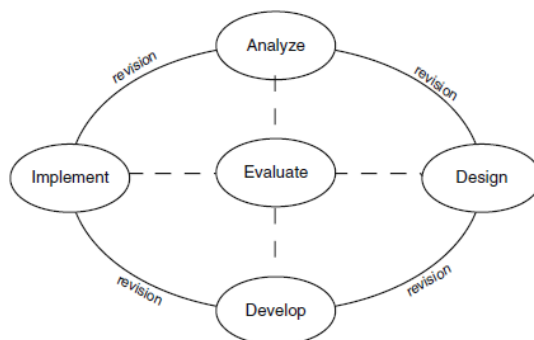


Fig. 1. Chart of ADDIE development.[3].

The instrument used was tested for validity and reliability testing. This instrument was adopted from research[7] Researchers only use the instrument because these were valid and reliable. In previous studies, it was found that the instruments used to look for validity using SPSS 21 software were all valid[8,9]. The results showed that all statements used to measure the validity of the instrument were classified as very good so it was feasible to use. In addition to the test, the instrument rehabilitation test was also carried out. with SPSS 21 software which produces an alpha value of 0.977. After comparing the alpha in the table, the calculated alpha value was greater than the alpha table, so the instrument reliability criteria was very high.

In addition, validation was also carried out by media experts and material experts to see the suitability of the material with SK and KD, the accuracy of the material and content, supporting learning material, material updates, module cover design, image display, and video and animation display. Then the students' perception data was taken to see the clarity of the text, the clarity of the image, the attractiveness of the image, the suitability of the image with the material, the clarity of the animation, the attractiveness of the animation, the suitability of the animation with the material, video clarity, video capture, the suitability of the video with the material, presentation of the material, clarity of the sentence, clarity of terms, suitability of the example with the material, ease of learning, interest in using modules, and increased learning motivation. The criteria of module based on table 1

Table 1. Criteria of the module [6]

Range percentage	criteria
80%-100%	Strongly Agree
60%-79,99%	Agree
40%-59,99%	doubtful
20%-39,99%	disagree
0-19,99%	Strongly Disagree

III. RESULTS AND DISCUSSION

An e-module for biochemistry courses has been made on carbohydrate metabolism content using professional 3D Pageflip software. The e-module design can be seen in Figure2.

Before the e-module was designed it need to be analyzed first by distributing questionnaires to students who have contracted biochemistry courses. The results of the analysis show that there were no reference / teaching material in the form of modules or other teaching materials, teaching materials were still in English and there were no good teaching aids for biochemistry lectures at UIN STS Jambi. This of

course must be made in the form of teaching materials or other modules to support lectures.

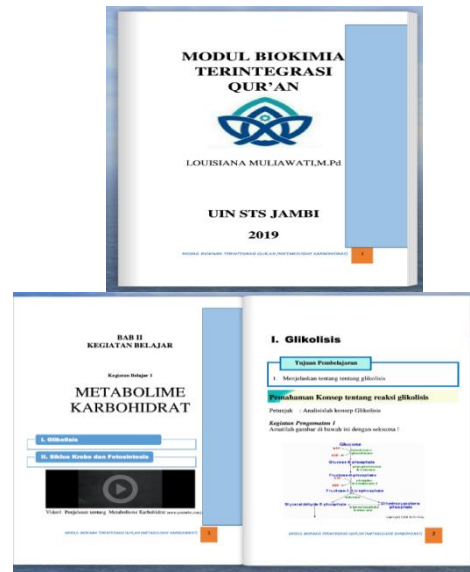


Figure 2. Example of Cover design and contents of e-module on carbohydrate metabolism material

After the e-module has been designed, the e-module is validated first by the media and material experts. The results of the validation by media experts and material experts regarding the media and the contents of the module show that there is little revision of the module on the latest Indonesian-language videos and animations on e-modules which are incomplete. In addition, the example questions on the module need to be reproduced and reduce the words in the module in English. Until now, the requested video and suggestions from the validator about the contents and material of the e-module have been completed and improved by the researchers.

As for the results of student perception data divided into 3 items namely the display module, presentation of material in the module, and the advantages of the module . For display module data can be seen in table 2.

Table 2. Results of student perception data on the e-module display

Indicator assessment	Statement	Score	Criteria
Display of Modul			
Clarity of the text	The text or writing on this module is easy to read	90,91	Strongly agree
Clarity of the figure	Size of image clarity picture presented is appropriate (not too big and not too small)	90	Strongly agree
	The color and shape of the displayed image is clear	91,82	Strongly agree
Attractiveness of figure	Figure presented interesting	92,73	Strongly agree

Indicator assessment	Statement	Score	Criteria
Compliance figure with content	The images presented in accordance with the content	91,82	Strongly agree
Clarity of animation	Animation presented is appropriate (not too big and not too small)	89,09	Strongly agree
The attractiveness of the animation	Interesting animation	96,36	Strongly agree
Compliance animation with content	Animation presented according with content	87,27	Strongly agree
Clarity of video	The video presented is appropriate (not too big and not too small)	88,18	Strongly agree
The attractiveness of the video	Video presented interesting	94,55	Strongly agree
Compliance video with content	Video presented according with content	92,73	Strongly agree

From table 2 it can be seen in the results of students' perceptions of the e-module display of content consisting of 11 items with excellent categories with an average of 91.41%. While the presentation of e-module materials can be seen in table 3.

Table 3. Results of student perception data on the presentation of e-module material

Indicator assessment	Statement	Score	Criteria
Content of the module			
Content presentation	Content presented from the simple to the complex	84,55	Strongly agree
	Content presented simple and understandable	88,18	Strongly agree
	Clear order of the content	84,54	Strongly agree
Clarity sentences	Using Sentence in the module easy to understand	79,09	Strongly agree
	Using language is communicative and not make boring	87,27	Strongly agree
Clarity of terms	Using terms in this module accompanied by an explanation and easy to understand	84,54	Strongly agree
Compliance example with content	This module explains the using an appropriate example problems and accompanied it by completion	84,54	Strongly agree

Table 4. Results of Student Perception Data on the advantages of e-modules

Indicator assessment	Statement	Score	Criteria
The advantages of Module			
Easy Learning	Instructions for use module clear and can help user to use it	90,91	Strongly agree
	The lesson in the module can help make it easier to understand the material	89,09	Strongly agree
Interest using the module	This module is interesting to learn	93,63	Strongly agree
Increased learning motivation	This module can help increase motivation to learn physics	93,63	Strongly agree

From table 3 it can be seen that the results of students' perceptions of the presentation of content e-module of carbohydrate topic were 6 items with very good category and 1 item with good categorization. If it was presented, the average student perception results on the presentation of content in the e-module of carbohydrate topic was 84.66%. This indicated that the presentation of e-module carbohydrate material was very good.

In this e-module biochemistry topic was very well integrated with Islamic material in the form of Qur'anic explanations and hadiths related to the scientific material being discussed. So, students can learned science in Islam according to the curriculum applied by UIN STS Jambi. The latest student perception analysis was about the advantages of e-modules. Analysis of the advantages of e-modules can be seen in table 4.

From table 4 it can be seen that the results of students' perceptions of the advantages of the e-module of carbohydrate material namely 4 items with a very good category with an average of 91.82% This indicated that the advantages of the e-module of carbohydrate material was very good. From the suggestions that students gave at the end of the questionnaire, they hoped that this e-module would soon be implemented in a large study class at UIN STS Jambi.

IV. CONCLUSION

Based on the results of the development and discussion, it can be concluded that the biochemistry e-module topic carbohydrate integrated with qur'an material has been validated by media experts and material experts.

In addition, the average results of students' perceptions for the display, presentation of material and the advantages of e-modules were respectively 91.41%, 84.68% and 91.82% with all three categories very good. In addition, the instrument used was also valid and reliable.

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