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Development of Electronic Modules Based on Blended Learning Flipped Classroom in Arabic Language Subject Class X Nuraida Islamic Boarding School Bogor

Penta Eka Nova Rinda[1*], Nurdin Ibrahim[2], Masitowati Gatot[3]
Universitas Ibn Khaldun Bogor
Jawa Barat, Indonesia
ummuhamzah87@gmail.com*

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Abstract

Learning outcomes in Arabic language subjects in secondary schools are still low, so effective teaching materials are needed to improve Arabic language learning outcomes. The study aims to develop and test the feasibility and effectiveness of developing electronic modules based on blended learning flipped classroom in class X Arabic subjects at Nuraida Islamic Boarding School Bogor. The study uses a development model Borg and Gall which is integrated with the Rowntree model. To test the feasibility of the researcher using validation from media experts, design experts and material experts and also considering the results of user responses from teachers and students. From the results of the feasibility test carried out by material experts at 81.33%, instructional design/media experts at 90%, teacher users at 90% and student users at 95%. Overall, the category was "very feasible". The results of the pretest and posttest data analysis show that the average pretest score of students is 52 and the average posttest score of students is 90, while the maximum average score is 70. Based on effectiveness testing using the N-Gain Score formula, a result of 0.8 was obtained in the high category or a percentage of 90. Per the conversion of the achievement level of the N-Gain score review results with a value of >76 which is categorized as effective. This means that the e-module developed is effective in improving student learning outcomes in Arabic language subjects. So, it can be concluded that the electronic module based on the blended learning flipped classroom in Arabic subjects that was developed is feasible and effective to use.

A. Introduction

Arabic language teaching is often carried out in Islamic schools to support the achievement of understanding of the Islamic religion itself. The specific objectives of teaching Arabic in schools include: 1) to understand the basics of Arabic as a scientific tool in Islamic religious education. 2) become the basis of Arabic language knowledge for students to be equipped to continue their education at the next stage (Amrina et al., 2022; Tabroni et al., 2022). However, many students have problems learning Arabic, this can be seen from the students' learning outcomes which tend to be low in Arabic lessons at school compared to other foreign languages (Hamdah, 2022; Khoeriyah, 2022; Maghfur & Ahmad, 2023). These low learning outcomes are also an obstacle for high school students who wish to continue their studies at Arabic language universities such as the Islamic University of Madinah, King Saud University, Princess Naura which require Arabic language skills in their scientific literature and also make Arabic a determinant in acceptance of new students.

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The obstacle encountered is the low learning outcomes and motivation in Arabic language lessons (Asse et al., 2023; Kerras & Essayahi, 2022). Another obstacle is the limited learning media that is interesting and easy to understand to support the achievement of learning outcomes at school. The method of teaching Arabic in schools tends to be carried out using a lecture method based on scholarly books. The process of learning Arabic needs to be supported by the use of learning media that is appropriate and easy to understand (Dewi S et al., 2021; Pikri, 2022; Rini, 2018). Apart from that, Arabic language teachers in schools must also be able to package learning in such a way as to create high attitudes and motivation in students in learning Arabic. This is in accordance with the statement by Abd. Gafar Jamil said that the meaningfulness of learning is largely determined by the teacher. Even though teachers are not the only source of learning, teachers are the main variable in determining the meaningfulness of learning. Teachers must be able to design and develop learning materials proportionally and accommodatingly to deliver learning to the goals to be achieved optimally. Proportional and accommodating design will create a passionate, dynamic and communicative learning atmosphere.

All the descriptions that have been mentioned, the researcher is interested in conducting research on the development of digital media in the form of electronic modules with the material in them referring to learning modern Arabic from modules published in Saudi Arabia, namely the mdoul "Al-'Arabiyyah Bayna Yadai Auladinaa" as media that will be used in the learning process in class X at Nuraida Islamic Boarding School Bogor on a blended learning flipped classroom learning basis.

B. Research Methods

The study was conducted in October 2023. The researcher combined the Rowntree with the Borg and Gall development model design to create the electronic module based on blended learning flipped classroom. There are nine development steps in Borg and Gall's model: (1) Research and collecting information, (2). Planning, (3). Develop preliminary foam a product, (4). Preliminary field-testing main product, (5). Main product revision, (6). Main product testing (7). Operational product revision, (8). Operational field testing, (9). Final product revision (Anista et al., 2022; AP Sari & Basuki, 2023). Meanwhile, the Rowntree development model consists of 3 stages, namely the planning stage, the writing preparation stage, and finally the writing and editing stage (Kusumawati et al., 2020; Rahayu et al., 2022).

In integrating these two models, the researcher designed the development of the Borg and Gall and Rowntree models as follows. At the research and collecting information stage the author combined it with the planning stage in the Rowntree model, at the planning stage, the researcher combined it with the writing preparation stage in the Rowntree model, at the develop preliminary foam a product, preliminary testing main product, main product revision, main product testing in Borg and Gall is combined with the writing and editing stages in the Rowntree model steps. Next, proceed with the 3 steps from Borg and Gall, namely operational product revision, operational field testing, final product revision and discussion and implementation.

Research and collection information. The aim is to collect information about the model/product being developed and identify problems that may be encountered in developing the model/product. This first step includes: literature review, observation of existing models, identification of problems in model/product development, needs analysis, and feasibility study

Planning Stage. At the planning stage, learning formulations are created based on the description and characteristics of students so that learning objectives can be achieved effectively. This step entails developing problem-related skills and experience, figuring out the objectives to be met at each stage, and, if required, conducting a brief feasibility study.

Writing Preparation Stage. Consider learning resources and barriers. Developers identify the target media to be developed, human resources who can help product development such as media experts, learning material experts and instructional design experts. Sequencing ideas/writing ideas Developing activities and feedback Determining relevant examples Determining graphics/images Determining the equipment needed. Formulate the physical form of the product.

Development of preliminary form of product, namely developing the first iteration of the final product that will be manufactured. This process includes creating instruction manuals and guidelines, creating supporting materials, and conducting assessments.

Preliminary field testing main product, which entails carrying out small-scale preliminary field trials. by using six to twelve subjects. In this stage, surveys, observations, and interviews might be used to gather and analyze data.

Main product revision, which consists of enhancing the first product manufactured in light of preliminary trial findings. Based on the outcomes of limited trials, it is quite likely that this improvement will be made more than once in order to produce a draft of the main product (model) that is ready for wider testing.

Main field testing. This step is a broader model/product test, this main test involves all students.

*Operational product revision***,** namely the process of improving or refining the outcomes of larger trials to create a product that is ready for validation that is, an operational model design.

*Writing and Editing Stage***.** Create a draft, complete and edit the product draft, combine all materials by arranging the layout and lines in the product being developed as well as adding learning activities and feedback that have been prepared previously. Writing learning assessments, recording and evaluating changes in student learning outcomes before and after using the media developed. Carry out trials and improvements. Test improvements in two ways, namely face to face involving three or five people and field trials involving 20 - 30 people.

Oprational field testing, namely the validation test step for the operational model that has been produced. This step is carried out on a large scale. At this stage, the effectiveness and adaptability of the model/product design is tested involving potential users of the model/product.

Final product revision, namely making final improvements to the model developed to produce the final product

The scale used in filling out the questionnaire is the Likert scale. Sugiyono (2018) in MZ Sari et al., (2020) suggests that the Likert scale is used to measure attitudes, opinions and perceptions of a person or group of people about social phenomena, with a scale of 1-5, the scale criteria can be seen as follows:

Table 1. Likert scale criteria

Score	Information
5	Very good
4	Good
3	Enough
2	Not good
1	Very not good

The data analysis used is quantitative and qualitative descriptive analysis. The product feasibility results by the validator can be interpreted in the following categories:

Test the suitability of materials and products using the following percentage formula (SD Sari, 2022):

$$\text{Percentage} = \frac{Score\ obtained}{Maximum\ score} x\ 100\%$$

The results of the percentage calculations are then analyzed using feasibility interpretation criteria. As a guideline, the following criteria are set:

Table 2. Feasibility Interpretation
(Pratama & Saregar, 2019)

Percentage	Qualification
80% < X ≤ 100%	Very Worth It
60% < X ≤ 80%	Worthy
40% < X ≤ 60%	Decent Enough
20% < X ≤ 40%	Not feasible
X ≤ 20%	Totally Not Worth It

To measure the effectiveness of electronic modules based on flipped classroom learning in class X Arabic subjects at Nuraida Islamic Boarding Schoolusing the normalized N-gain concept based on pretest and posttest score data. To calculate the N-gain value, the calculation developed by Hake (1999) is used Hilmi & Sapri (2022), that is:

$$\text{N – Gain} = \frac{Post\ Test\ Score - Pre\ Test\ Score}{Ideal\ Score - Pre\ Test\ Score}$$

Note: The ideal score is the maximum (highest) score that can be achieved

N-gain scores are grouped into high, medium and low categories as presented in the following table.

Table 3. N-gain classification
(Ainy et al., 2024)

N-gain Earning Category	Information
N-gain> 0.70	Tall
0.30 ≤ N-gain ≤ 0.70	Currently
N-gain< 0.30	Low

C. Result and Discussion

The development procedure in this research uses the Rawntree development model flow which is integrated into the Borg and Gall development model flow

Planning stage, at this stage a preliminary study and direct observation was carried out on class X students at Nuraida Islamic Boarding School, Bogor City by collecting data in the form ofinterviews with Arabic language subject teachers, related to learning outcomes (average daily test scores for the last 2 years), questionnaires documenting students' learning motivation, questionnaires documenting learning tools, and questionnaires documenting school facilities and infrastructure.

Writing and editing stage, at this stage, three experts namely experts in media design, instructional design, and material design, conduct a feasibility test on products that have been designed and validated. The purpose of the test is to gather feedback, suggestions, and improvements so that the final product is well-suited. Tables 4, 5, and 6 display the validation results from learning design experts, media experts, and material experts.

Table 4. Validation Results from Learning Design Experts

No	Assessment Aspects	Percentage (%)	Category
1	Needs Analysis	85%	Very Worth It
2	Learning and Content Design	97%	Very Worth It
3	Product Development	92%	Very Worth It
4	Use	100%	Very Worth It
5	Evaluation	100%	Very Worth It
	Average	92%	Very Worth It

Table 5. Media Expert Validation Results

No	Assessment Aspects	Percentage (%)	Category
1	Media Display	92%	Very Worth It
2	Product quality	78%	Worthy
3	Navigation Layout	50%	Decent enough
	Average	73%	Worthy

Improvements to the navigation layout aspect include the addition of a game hint feature, as well as sounds when the user is successful or unsuccessful in completing the game.

Table 6. Material Expert Validation Results

No	Assessment Aspects	Percentage (%)	Category
1	Material Quality	74%	Worthy
2	Language	80%	Very Worth It
3	Presentation of Material	90%	Very Worth It
4	Use	90%	Very Worth It
	Average	81%	Very worthy

The next stage, after the product is declared feasible, is tested on its use one to one with students and teachers, large groups and small groups as in the following table.

Table 7. Student one to one test results

No	Indicator	Question No	PD1 Score	PD2 Score	PD3 Score	Average
1	Installation of electronic modules	1	4	4	4	4
		2	3	4	4	4
2	Clarity of use	3	3	3	4	3
		4	4	4	4	4
		5	3	4	4	4
3	Effectiveness of use	6	4	3	3	3
		7	4	3	4	4
		8	4	4	4	4
4	Suitability of evaluation activities	9	4	4	4	4
		10	4	4	4	4
Total			37	37	39	38
Average Number of Validity Tests (%)						95%

Table 8. One to One Teacher Test Results

No	Indicator	Question No	Score
1	Learning Materials in accordance with Basic Competencies (KD)	1	4
2	Learning materials are in accordance with learning objectives	2	4
3	Sequence of learning activities in learning strategies	3	3
		4	3
4	Suitability of model learning media learning activities	5	3
		6	4
		7	4
3	Effectiveness of learning models	8	4
6	Time allocation according to activities	9	3
7	Tests according to learning material	10	4
Total			36
Average Number of Validity Tests (%)			90%

Table 9. Large Group Test Results

No	Indicator	Question No	Average
1	The addition of an Arabic language electronic module based on a flipped classroom	1	3.7
		2	4
2	Clarity on the use of flipped classroom-based Arabic language electronic modules in learning	3	3,2
		4	3.8
		5	3.6
3	Effectiveness of using flipped classroom-based Arabic language electronic modules in learning	6	4
		7	3.8
		8	3.6
4	Suitability of evaluation activities to lesson material	9	3,4
		10	3.6
Total			35
Average Number of Validity Tests (%)			87.5%

Table 10. Large Group Test Results

No	Indicator	Question No	Average
1	The addition of an Arabic language electronic module based on a flipped classroom	1	3.6
		2	3.8
2	Clarity on the use of flipped classroom-based Arabic language electronic modules in learning	3	3,2
		4	3.6

No	Indicator	Question No	Average
3	Effectiveness of using flipped classroom-based Arabic language electronic modules in learning	5	3.6
		6	3.3
		7	3.8
4	Suitability of evaluation activities with lesson material	8	3.3
		9	3,4
		10	3.6
Total			35
Average Number of Validity Tests (%)			88%

Following the product's declaration as feasible, the next step is implementation, where the usefulness of the product is tested by comparing the pretest and posttest results of ten mentally retarded students in the experimental class (learning with fun alphabet media) and ten mentally retarded students in the control class (conventional learning) with the assessment takes the form of a handwritten assessment. Analysis of the assessment grid for learning letter recognition in the form of writing or handwriting based on Novianti 2021 research in Ardianti et al. (2023) namely, there are sub-aspects of writing readiness, physical readiness, and hand writing skills. The assessment results can be seen in table 11.

Table 11. Pretest and Posttest Comparison Results

Number of Students	30	30
Total score	1557	2703
Ideal Score	100	100
Class Average Score	51.92 (52)	90.1 (90)
Minimum Score	40	70
Maximum Score	80	100

Based on the data in the table, the N-Gain score analysis is carried out as follows:

$$\text{N – Gain} = \frac{Post\ Test\ Score - Pre\ Test\ Score}{Ideal\ Score - Pre\ Test\ Score}$$

$$= \frac{90-52}{100-52}$$

$$= \frac{38}{48}$$

$$= 0{,}795$$

$$= 0.8$$

In data analysis, the N-Gain score obtained a result of 0.8 or categorized as high. Next, the results of the N-Gain acquisition are converted into a percentage by multiplying by 100 so that the N-Gain score becomes 80. In accordance with the conversion of the level of achievement of the review results in the N-Gain score table with a value of >76 it is categorized as effective, then based on obtaining a score of 80, it shows that The use of electronic modules based on flipped classroom learning in class X Arabic subjects at Nuraida Islamic Boarding School is effective.

The evaluation stage in this research was carried out in drawing conclusions and improving the validation results so that the product created could be said to be suitable and effective for use in Arabic language learning and its use could be used anywhere and anytime..

In the future, it is hoped that the development of learning media using technology can be developed not only in learning Arabic with number material but also all the material that forms the basis of Arabic language skills to make it easier for students to use media to support learning.

D. Conclusion

This research and development uses the Rawntree development model which is integrated with the Borg and Gall development model. Based on the feasibility test on the development product through assessment by learning design experts with a percentage of 92%, by media experts with a percentage of 73%, a percentage of 81% by material experts, thus the development product for Arabic language learning media based on blended learning flipped classrooms is "very feasible".

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