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Development of Puzzle Learning Media in Vocabulary Teaching Based on Quantum Learning

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Abstract

Students consider Arabic vocabulary challenging to understand, as with Ciomas Islamic Middle School pupils. Students need help understanding Arabic vocabulary because the educational method needs to be more appropriate for learning. This research aims to 1) know how vocabulary is taught in the seventh grade. 2) to know the puzzle, a teaching aid is developed in vocabulary based on Quantum Learning. 3) to know the effectiveness of developing the puzzle educational tool in teaching vocabulary based on Quantum Learning. 4) to know the advantages and disadvantages of developing the educational puzzle based on Quantum Learning teaching vocabulary. The method used for research and development with puzzle educational tools uses Borg and Gall's development theory in seven steps. The results of expert evaluation of the medium, where experts assess the educational medium in terms of material quality and material with a value of a factor of 1, which, if described, has very high validity. The average value of the pre-test is 61%, and the average value of the post-test is 81.4%, with the significance value of the data being 0.00.

Keywords: Research Development, Media Puzzle, Quantum Learning.

Introduction

Arabic is often used as a foreign language by the Indonesian people, especially the Muslim community, especially in worship. Therefore, Arabic is also a foreign language studied by the people of Indonesia. So far, Arabic language teachers have offered many educational methods and techniques to bring students to achieve academic goals (Inayah, 2019). Arabic is the most important language for Muslims and a foreign language for the people of Indonesia. Vocabulary is one of the essential language elements a person must have in teaching foreign languages, including Arabic.

Sufficient Arabic vocabulary, of course, can support someone in communicating or understanding the language. Thus, it can be said that understanding both orally and through speech is mastery of language, with the main supporting factor having a large vocabulary

(Inayah, 2019) Therefore, adding vocabulary is very important in teaching a language or developing the capacity of someone already proficient in the language. Arabic vocabulary is essential in teaching Arabic, which every teacher should teach.

In general, there are several basics in teaching vocabulary in schools, including choosing common and often used, prioritising easily obtained when needed, and choosing vocabulary that includes different aspects comprehensive. Because it needs to be appropriately implemented, it will also prevent students from becoming weak in teaching Arabic. Therefore, students' knowledge and understanding of vocabulary are essential (Shaputra et al., 2021).

In teaching vocabulary there are some essential tools that the teacher should use in teaching vocabulary. At school, the objectives of teaching vocabulary are: introducing new vocabulary to students, training students to be able to pronounce vocabulary correctly and correctly, understanding the meaning of vocabulary, and the ability to use vocabulary orally and in writing. These goals reflect the integration of cognitive and psychomotor competence (Wahab, 2015).

Therefore, the indicators of vocabulary education for students do not lie in their ability to memorise and produce vocabulary but in their skills in using vocabulary correctly and understanding texts and expressions. However, it is miserable that this indicator of vocabulary teaching is not found in seventh-grade students of MTs Islamiyah Ciomas; of 25 students, 15 do not understand Arabic vocabulary. Meanwhile, when referring to the Indications for Teaching Vocabulary, students must be able to understand, pronounce and use vocabulary both in verbal and written form. They use ineffective teaching media and think Arabic is a complex subject.

Based on observations, the problems in *Madrasah Ibtidaiyah* or Middle High School were caused by using inappropriate teaching methods, namely the rote method. The teacher asked students to memorise vocabulary without re-evaluating whether students understood and could use the language taught. In addition, these problems are also caused by the use of inappropriate media education that cannot help students understand vocabulary material. There are several alternatives: teaching strategy innovation, development, providing intensive training, monitoring, and evaluation to solve the problems of class VII students at MTs Islamiyah Ciomas.

The researcher developed Puzzle media in vocabulary learning based on Quantum Learning. The researchers developed this media because the academic press is one of the teaching tools for teachers to transfer teaching materials and increase students' creativity and attention in the learning process (Tafonao, 2018). Media in the teaching process is critical in creating student activities. Media presence is also beneficial for teachers in the teaching process, especially in helping teachers convey information to the message recipients, in this case, students. It is because the traditional education system often applied in the classroom is filled with an educational atmosphere considered less in line with the dynamics of the increasingly rapid development of science and technology (Husein, 2018).

The result of this media is hoped to help increase students' attention and understanding in teaching vocabulary. The researcher developed a puzzle media based on Quantum Learning

because the puzzle method and Quantum Learning strongly correlate. Quantum Learning is a strategy and the whole learning process that can sharpen understanding and memory and make learning fun and rewarding. Therefore, puzzle media is very suitable for Quantum Learning because puzzle media is a game medium that can make the educational atmosphere more fun.

This research aims to know vocabulary is taught in the seventh grade, know the puzzle, a teaching aid is developed in vocabulary based on Quantum Learning., know the effectiveness of developing the puzzle educational tool in teaching vocabulary based on Quantum Learning, and know the advantages and disadvantages of developing the educational puzzle based on Quantum Learning teaching vocabulary.

Research Methods

A. Development Research Method

The method used in this research is the development method—the object of the study of the seventh class at MTs Islamiyah Ciomas Serang Regency, Banten Province. According to Sugiyono (2015), what is meant by research or development methods, or in English, is called Research and Development; research methods are used to produce a particular product and test the effectiveness as a process or steps to develop a new or improve an existing product. The product can be in the form of Hardware or Software Hardware such as books, units, or teaching aids in the classroom or the laboratory Programs to include computers for data processing, classroom teaching, library or laboratory, teaching-learning model, training, assessment, management, *Etc* (Sugiyono, 2015).

This method allows researchers to create development products. According to Creswell (2013), the development method is used to develop and validate educational products. The steps of this process are usually referred to as the development cycle, which consists of studying the results of research related to the product to be developed, developing the product based on the results of the test area in the setting where it will eventually be used, and reviewing it to correct deficiencies found in the proposed testing phase. This cycle is repeated in more stringent development programs until the test data fields show that the product meets the specified behavioural goals (Hanafi, 2017). The development method is a practical method for product development and realisation.

B. Development Steps

The model in this research is procedural, descriptive, and planned in the development steps. It is based on theory (Borg and Gall), and the steps to be followed to produce a product include (1) data collection, (2) planning, (3) first product form, (4) product design validation, (5) product design revisions, (6) main product trials, (7) operational product revisions, (8) operational product trials, (9) final product revisions, (10) Applications. (Sugiyono, 2015) Researchers use this theory in this study to produce product development.

1. Data Collection

Conduct research and gather information, including literature reviews and class notes. Understanding data collection techniques or data collection is a research process in which researchers apply scientific methods in collecting data systematically to analyse it. In addition, the collection technique is a technique or method used by researchers to be able to collect data related to the research problem they are doing.

2. Planning

Planning includes defining skills, setting goals, and preparing instructions and small-scale testing. Planning in research and development consists of formulating research objectives, estimating objects needed in research, and formulating researcher qualifications and forms of participation in the study. *Planning* is a critical stage that needs to be done before conducting research and development.

a. First Product Form

After initialisation in complete planning, the main thing in the research and development stage is to prototype a testable product. This product development stage includes creating tools to get user feedback. Before the trial, notes and suggestions from colleagues in related fields, namely the Arabic language teaching media field, are needed. The development of the first production model activity includes preparing educational materials, brochures, and assessments.

b. Product Design Validation

This experiment was carried out in 2-3 chapters using 10-20 subjects. Data were collected and analysed through interviews, observations, and questionnaires.

c. Product Design Revision

This Product Design Revision is based on input from the validator or expert.

d. Main Product Trial

The experiment was conducted in 5-10 classes with 25-100 subjects, and quantitative data were collected on subjects' performance before and after education. The results were evaluated regarding the following learning objectives, where the results were compared with the control group data. Operational Product Revision, this step is based on input from the main field test results.

e. Operational Product Trial

The operational product was tested in 30 schools with 40-100 subjects, and data were collected and analysed through interviews, observations, and questionnaires.

f. Final Product Revision

This revision was carried out based on input from the results of operational field tests.

g. Application

It can be done by informing, publishing, and producing through daily meetings and journals.

C. Research Development Objectives

The objectives of development research are as follows: (1). Produce designs for products to be developed to improve the quality of previous products. Product design is the development of the previous product. (2). Test the effectiveness of the final product with limited or rigorous testing of the product applied. (3) Testing the product's effectiveness, efficiency, and attractiveness is carried out by testing the product directly in the field on a larger scale (macro), where the product will later be applied in the educational process.

D. Population and Sample

The population is all a set of subjects from the problem under investigation. The people in this study were all seventh-grade students of MTs Islamiyah Ciomas. Moreover, the number of seventh grades students is 25 students. The sample refers to the group of subjects chosen by the researcher to be in direct contact with them during his research. The researcher uses the saturated sample technique according to Arikunto; if the number of groups is less than one hundred students, then the sample follows that number. If more than that, it can be taken with a percentage of 10%-15% or 20%-25% or more (Arikunto, 2012). Therefore, the researcher used the "saturated sampling method" and took all the seventh-grade students because the number was less than 100.

E. Data Collection Techniques

To obtain the required data, the researcher used the following steps:

1. Observation

Observation is a method of collecting data, so researchers take notes directly from the topic under study. Moreover, this research presents data on the development of educational tool puzzles based on quantitative education in teaching vocabulary (Sudrajat, 2005). In the observation process, the researcher observed the learning carried out by the seventh-grade teacher of MTs Islamiyah Ciomas; besides that, the researcher also proposed pre-test questions to determine students' ability to master vocabulary. Then, researchers will develop puzzle learning media to facilitate students' teaching of vocabulary material. The next step is for the subject teacher to observe the teaching process using puzzle media to assess whether the learning is practical and follows the researcher's lesson plan (RPP).

2. Interview

An interview is a conversation between two people initiated by the interviewer (researcher) with a specific purpose, aims to obtain information relevant to research, and focuses on certain content to study for an explanation, prediction, or structured explanation (Arikunto, 2012). The researcher conducted a personal interview with the Arabic language school, and the discussion was aimed at obtaining information and data related to this research.

3. Documentary Method

The documentary method is a method used to collect written data from notes, directories, books, newspapers, magazines, Etc (Arikunto, 2012). This method is intended to obtain quantitative data on student analysis in vocabulary subjects in the topic "My House".

4. Data Analysis

Data analysis was done in qualitative research before and after finishing the field. In this case, the study begins formulation of the problem explanation, before going area, and continues until the writing of the research results" (Sugiyono, 2015).

Results and Discussion

Researchers conducted research in seventh grades MTs Islamiyah Ciomas. There, the researcher observed 25 students in seventh grade, 11 boys and 14 girls, and the Arabic

teacher was an observer. The teacher explains the material, and the students listen to it. At that time, the researcher was teaching vocabulary with the "repetition" method without using learning media, so students were less interested and did not understand the vocabulary material. Researchers researched the development of puzzle products to attract students' interest and facilitate their understanding of the vocabulary material presented. The following results test the puzzle development product for class VII students in vocabulary learning. These results are taken from the pre-test and post-test scores using the SPSS Application calculation:

Table 1

Test Analysis Pre and Post Test

NO	NAME	PRE-TEST	POST-TEST
1	Aina	75	50
2	Aisyah	90	70
3	Alif Wahidin	70	45
4	Almawati	90	80
5	Alfi Ramadhan	80	70
6	Aris Rohmat	80	65
7	Dina Fitri	70	40
8	Dwi Cahyani	90	80
9	Eva Fahira	85	60
10	Farid Al fakih	70	50
11	Herdiansyah	75	30
12	Iis Ismiati	100	90
13	Kamilah	100	80
14	M. Agam Sahnur	75	50
15	M. Arista Aditya	70	50
16	M. Farhan Aliyudin	75	60
17	M. Ramadhan	60	25
18	Nurkhalisah	80	80
19	Febriansyah	65	30
20	Ratih Rahmawati	100	90
21	Rina Aryani	100	80

Based on the pre-test and post-test scores of seventh-grade students of MTs Islamiyah Ciomas, the total pre-test scores were 1525 with an average score of 61, and the total post-test scores were 2035 with an average score of 81.4. If it is entered into the count formula using the SPSS application, the results are as follows:

➔ **T-Test**

[DataSet0]

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre test	61.0000	25	18.48423	3.69685
	Post test	81.4000	25	11.59382	2.31876

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pre test & Post test	25	.883	.000

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre test - Post test	-20.40000	9.88686	1.97737	-24.48110	-16.31890	-10.317	24	.000

Figure 1: T-Test Analysis

It is known that the average pre-test score of 25 students is 61, and the average post-test score of 25 students is 81.4. After calculating using the SPSS application, it is known that the significance value between the pre-test and post-test is 0.00, which is smaller than the table value of 0.05. So, the results of the trial of the puzzle development product in vocabulary learning for seventh-grade students of MTs Islamiyah Ciomas are significant. The advantages and disadvantages of puzzle development media: Strengths The development of puzzle learning media for vocabulary teaching based on quantitative education and puzzle media has the following benefits: It has an attractive design so that it can increase students' attention and interest in interdisciplinary education, and use language that students easily understand. It is light and easy to use. It has an image design that matches the original, so it is easy to imagine it with the original. Besides the advantages, puzzle development media also has disadvantages; the press is made of semi-permanent material, so it can be destroyed at any time and can only be used once.

Conclusion

Based on the results of development research titled "Development of educational tool puzzles in teaching vocabulary based on Quantum Learning" development research in seventh grades at MTs Islamiyah Ciomas. The problem in learning vocabulary is that students do not understand Arabic because of a lack of motivation and the use of teaching media according to student needs. Researchers conducted development research using the theory of Borg and Gall, which consisted of 10 steps. 1) data collection, 2) planning, 3) initial product design, 4) product design validation, 5) product design revisions, 6) main product trials, 7) main product revisions, 8) operational product trials, 9) revisions operational products, and 10) applications. The results of the puzzle development product trial on the vocabulary learning of seventh-grade MTs Islamiyah students were significant when viewed from the pre-test and post-test scores. The puzzle development product effectively teaches Arabic vocabulary to seventh-grade students of MTs Islamiyah Ciomas. The result shows the pre-test and post-test scores. The total pre-test scores were 1525 with an average score of 61.00, and the total post-test scores were 2035 with an average score of 81.40, as shown in the table:

Testing	Scores	Average
Pre-test	1525	61.00
Post-test	2035	81.40

This study explains the significance of developing quantum learning-based puzzle media to increase students' attention and understanding in learning vocabulary. In addition, this research contributes to a strategy to increase the acuity of a fun learning process. This research focuses on the more appropriate the learning media used, the more enjoyable and valuable the learning process. Practically proves that quantum learning media can produce a pleasant learning atmosphere.

Suggestion

Researchers or other parties develop different puzzle media following technological developments and curricula used in schools or the result of other subjects. It is recommended that teachers operate or use puzzle props as learning resources or teaching aids that can—and coupled with learning styles so that they become diverse. For students, it is recommended to use puzzle props and use them as learning resources at home or school so that students will be more skilled in understanding lessons, especially in learning vocabulary.

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