

## DEVELOPMENT OF WORD SQUARE LEARNING MEDIA IN SCIENCE LEARNING IN GRADE III SD MUHAMMADIYAH 18

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ARTICLE INFO	ABSTRACT
<p><b>Article History</b></p> <p>Accepted : 13-01-2025</p> <p>Approved : 10-02-2025</p> <p>Published : 28-02-2025</p>	<p>This research includes the use of Word Square learning media in classroom learning activities. The researcher developed word square learning media in science learning. This researcher is a type of development research or Research &amp; Development (R&amp;D) adopting the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model. The results of this study show that the word square media in the learning of science of Weather Change material is considered valid and practical. The level of validity and practicality of Word Square media is seen based on the assessment by the Media Valaidator obtained a score of "92%", Material Validator "97%", Language Validator "78%" and Student response "95.%" , with the criterion of "Very Practical", which means "Valid" media to be used in the teaching and learning process. Then the results of the assessment of media practicality by teachers showed the results of intention, namely "94.2%", and with the criterion of "Very Practical" which means "Practical" media to be used in learning media.</p>
<p><b>Keywords</b></p>	<p><b>Learning Media, Word Square, Science Learning.</b></p>

### 1. INTRODUCTION

Education is a basic need of every human being. The meaning is that every individual has the right to be involved in an educational process, both formally. Our country even guarantees this educational need in the 1945 Constitution, where article 31 paragraph 1 expressly states that every citizen has the right to education. Based on Law No. 20 of 2003 concerning the National Education System (Sisdiknas) it is stated that:

Education is a very influential factor and determines how a nation will progress in the future. A developed and large nation is inseparable from the education system that is

an effort to educate citizens carried out by the state. As the country with the 4th largest population in the world with a population of 276.4 million people according to the World Bank in a journal (Afifah, novita, & muhroji, 2022).

Science learning in the 21st century has changed to student-centered learning. This learning can be developed with science literacy learning. According to Yulianti (2017), at the elementary school level, natural sciences or science have a very important position in education so that science literacy skills need to be trained and improved in elementary school (SD) level students so that students can face

various  
21st century challenges. (Sari S. P., 2022).

In teaching practice, the use of a theoretical basis for all situations is an unwise act, there is no single learning theory that is suitable for all situations. Because each has a different foundation and is suitable for certain situations. In elementary school education, it is more suitable to use a theory related to the needs of students in school

Based on the results of an interview that has been conducted at SD Muhammadiyah 18 on November 1, 2023 with Mrs. Fitratul Insani at 12.25 pm, it was found that the problem at school is that students are less active during learning because of the lack of learning media that function as support at school and teachers are also still using monotonous methods.

The following is a link to the interview results that have been conducted on the google drive link:

[https://drive.google.com/file/d/1410SuvpDocPcmjAb1RN049nPRIalOPM/view?usp=drive\\_link](https://drive.google.com/file/d/1410SuvpDocPcmjAb1RN049nPRIalOPM/view?usp=drive_link)

Based on the link above, the results of the interview show that teachers in the classroom often use lecture and discussion methods and teachers rarely use learning media, only at certain moments teachers use learning media.

Learning media is something that is used to convey messages and clarify abstract learning content to be more real (Farida, 2022: 164). The selection of the right learning media will improve student learning outcomes and can help the achievement of learning objectives to be achieved to the maximum. Learning media is useful for educators to be able to make students more involved in the learning process.

The learning media used by a teacher can also be creative media so that students will not feel bored with the learning process that they follow. The advantage of learning media for students is that it can activate students' senses, both sight and hearing. The courage of the

knowledge conveyed can provide a wasted opportunity for students to see, hold, contact and do something on their own that they believe is not difficult to do, so as to produce actions in such an increased experience.

In the journal (Andini, 2018) Word square is a learning model that facilitates the ability to answer questions with foresight in matching answers in answer boxes according to (Wati, 2016)

Education is one of the learning processes, starting from elementary school to high school, one of the learning that is applied is the subject of Science (Natural Sciences). Science is one of the subjects studied in school, as we know the characteristics of science, namely Natural Sciences is not only learning a collection of knowledge in the form of facts, concepts, or principles but also a process of discovery.

IPA ialah suatu cara atau metode untuk mengamati alam, IPA dapat di sebut sebagai A science that studies everything related to the good nature that occurs naturally and artificially. Science learning is not only knowledge about facts, or concepts. Natural Science (IPA) is one of the subjects in elementary school. Natural Science is a science that is related to the surrounding nature, both from objects and events that occur in the surrounding nature. According to Hezbollah & Nurhayati (2018) "Science is a science about natural phenomena that has been tested for truth through activities in scientific methods."

Efforts that can be made to overcome these problems are that educators must remember the learning media. By getting used to the use of learning media, educators can build student learning inspiration, as well as revive students' considerations and ways of seeing in realizing so that normal educator experience can be achieved.

## 2. RESEARCH METHOD

The method used in this process is the Research and Development (R&D) method. According to (Putra, 2021) research and development or Research and Development (R&D) is one of the research models that is widely used because of the importance of developing science to be able to provide convenience for every learning that is carried out.

The development used in this development is ADDIE. The ADDIE model consists of five steps, namely: 1 analyze, 2 design, 3 development, 4 implementation, 5 evaluation. This fifth stage is a step in the development of word square learning media.

## 3. RESULT

The development of Word Square was carried out by validating all subjects who were selected as validators of materials, media, and language with the aim of determining the feasibility of learning media in the form of word square. The type of research carried out is Research and Development (R&D) by producing a product developed in the form of teaching materials or learning media used by word wall applications. The research and development model used is the ADDIE model which consists of 5 stages, namely analysis, Design, Development, Implementation, and Evaluation. However, this study is limited to the implementation stage only. The research modifies the learning media as needed. Based on the development research conducted, the following research results were obtained:

### a. Analysis Stage

The stages of analysis carried out in the development of learning media are as follows:

#### 1. Needs Analysis

Needs analysis is carried out through interviews with classroom teachers to find out problems related to the learning process. Based on the results of interviews with homeroom teachers information was obtained that the use of media

is still minimal, especially in science learning, where only textbooks are used so that during the teaching and learning process does not actively involve students. Based on the results of this analysis of student concerns, it can be seen that students need interesting and interactive learning media so that students can actively learn.

#### 2. Analysis of Student Characteristics

After studying all the characteristics, students can understand the material that I give to Grade III students. Students are very active in learning Word Square in which there is picture material, which explains the usefulness or benefits of weather for human life. The students are very disciplined, have a very good attitude, and appreciate the teacher who is explaining.

#### 2. Media Analytics

Word Square is used as a learning medium. The stages begin to make questions and answers as many as 5 questions, the design of the picture has boxes and in it there is a random group of letters in which there is the answer and there are also questions on the right side if played there will be a question if answered incorrectly there will be a "Cross" sign if it is true there will be a sign "Cross", in the top left there is time to use the word square after the time is over the box and the letters will disappear after that the time and number of scores answered correctly appear.

#### 3. Curriculum analysis

At the stage of curriculum analysis, the researcher analyzed the curriculum that applies to SD Muhammadiyah 18 Medan. This analysis was carried out with the aim of determining learning indicators based on the applicable Competency Standards (SK) and Basic Competencies. The implementation and indicators based on Basic competencies are as follows:

**Tabel 4.1 Basic Competencies and Learning Indicators**

Basic competencies (KD)	Indicators
3.3 Analyze information about changes	3.3.1 Identify
Weather and its effect on life	Information about weather
human	Information about weather
4.3 Presenting the result of information about the concept	3.3.2 Knowing the vocabulary
Weather changes and their effects	Used in information
Weather changes and their effects	Used in information
Write using standart vocabulary and	
Write using standart vocabulary and	

**d. Design Stage (Design)**

Design Stage After passing the analysis stage, the next stage is design, the media specification that is made is learning media made using the WordWall application. The stages of the designer carried out by the researcher are as follows:

**1. Referral Filing**

The research seeks and collects, as well as compiles learning media that have been obtained from various sources such as journals of research results. Animations and pictures are used for material instructions on the learning media.

**2. Material Assessment**

Based on the stages of material analysis used to develop Word media Square uses the Wordwall application. In science material which consists of the definition and variety and benefits of weather for daily life.

**c. Development Stages**

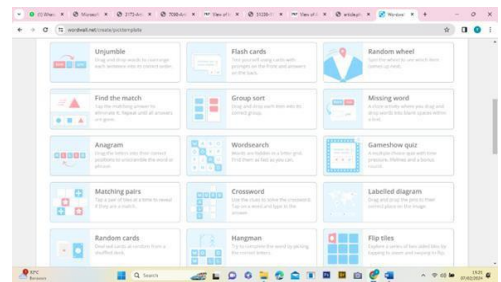
After making the media content design, the next stage is the development stage by making the actual media, in accordance with the

wordwall that has been designed. The following are the results of the development of learning media.

**1. Manufacturing of Fishing Media (Initial product)**

The point of this development is that the media is developed into a wardsquare. The media that develops aims to facilitate and increase the relevance of students in science learning. The following are the stages of the media creation process.

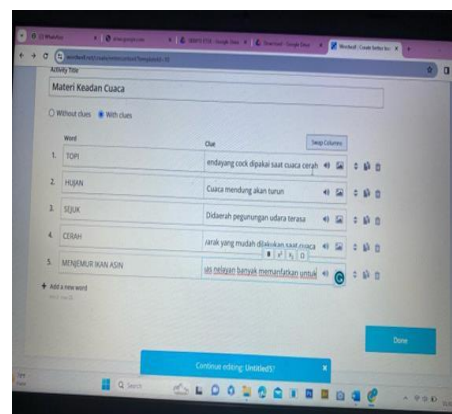
- a. First, open the Word Square application after that log in using email
- b. After logging in, it appears select the name Wordsearch and



**Figure 4.1 Initial View of Manufacture**

- c. Select with cluse and rename it according to the subject and make some numbers you want, after that in Word the answer is the answer and in Clue it is the problem, after all the questions are written click the bottom of the Done one.

**Figure 4.2 Question and Answer Creation**



d. After clicking Done will come out Start in the middle click section

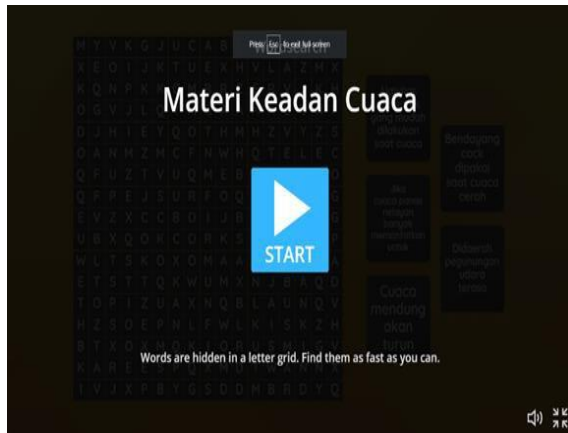


Figure 4.3 Initial Planting

e. The word square media will appear with the right part having the question and in the upper corner of the time and looking for the answer that matches the question.

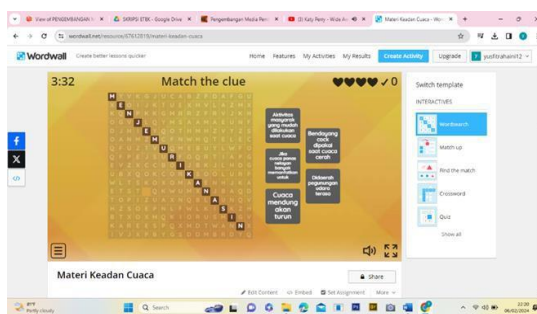


Figure 4.5 Word Square Contents Display

On the display above the word square media so that students can understand it more easily

**d.Implementation Stage**

**1. Description of Media Validity Valiadation Results**

Word square learning media is assessed by using validation questionnaires by experts. This assessment is used to determine the feasibility of the media developed. The media developed is based on the creation of lesson plans. After the media is developed, its validity is tested. Describe it as follows.

a) Definition of the Results of the Assessment of Fishing Media. Media expert validation is an assessment and evaluation of the feasibility of media used in developing word square learning media. Validation of media experts with Mr. M.Afiv Toni S.Saragih, M.Pd as a lecturer at FKIP Muhamadiyah University of North Sumatra.Validation of media experts aims to find out whether the media used is valid.

**Media Table 4.2 Results of Media Expert Product Validation**

NO	Aspects assessed	Skor	Kriteria
1	Has an attractive design	5	Highly
2	Colors according to the	5	Highly
3	Clear image quality	5	Highly
4	The boxes and letters are	5	Highly
5	Word Square sesuai	4	valid
6	There is an answer in the box	5	Highly
7	There are indications for use	4	valid
8	Students' relevance to	4	valid
9	The answer is easy to	4	valid
10	No harm to students	5	Highly
Jumlah		46	
Rata-Rata		92 %	Highly valid

From the data listed above, it is the result of the calculation

$$P = \frac{f}{N} \times 100$$

$$= (46/50) \times 100\%$$

$$= 92\% \text{ (sangat valid)}$$

Based on the results of the media analysis conducted by the media expert validator conducted by the media expert validator, a score of "92%" with the criterion of "Very Valid", it can

be concluded that the Learning Media is "Valid" for use

b) Description of Material Research on Learning Media  
Material expert validation is an assessment and evaluation of the feasibility of the material used in developing word square media. Validation of material experts with mothers as science teachers at SD Muhammadiyah 18 Medan. Validation of material experts aims to find out whether the material used is valid or not.

**Table.4.3 Material Validation Results**

NO	Assessed aspects	Skor	Kriteria
1	Materials in accordance with basic competencies	5	Highly valid
2	Suitability of material to indicators	5	Highly valid
3	Suitability of material content	5	Highly valid
4	Suitability of material content with learning	5	Highly valid
5	Accuracy of material selection	5	Highly valid
6	Elements contained in the material	5	Highly valid

NO	Assessed aspects	Skor	Kriteria
7	Scope of material for goal	5	Highly valid
8	Examples given to explain the material	5	Highly valid
9	The appeal of delivering	5	Highly valid

10	Clarity in the delivery of material	5	Highly valid
11	The use of images in the media is	5	Highly valid
12	In accordance with the language used	4	valid
13	Independent learning opportunities	4	valid
14	Possibility of influencing students	5	Highly valid
15	Question quality for student understanding	5	Highly valid
Sum		73	
Average		97 %	Highly valid

From the data listed above are the results of the calculation

$$P = \frac{f}{N} \times 100$$

$$= (73/75) \times 100\%$$

$$= 97\% \text{ (sangat valid)}$$

Based on the results of the media assessment conducted by the material validator, a score of "97%" was obtained with the criterion of "Very valid", it can be concluded that the Learning Material is "Valid" to be used.

### C. Description of Language Assessment in Learning Media

Linguist validation is the examination and evaluation of the feasibility of the language of the learning media. The validation of linguists aims to find out whether the language used in the learning media is in accordance with the specified indicators, as well as to know the facilities and inputs for the improvement of the learning media. The

summary of the language validation results can be seen in the table below:

**Table 4.4 Validation Results from Linguists**

NO	Assessed aspects	Skor	Kriteria
1	The sentences used are simple and direct to the target	4	Valid
2	Spelling accuracy	4	Valid
3	Consistent use of terms	4	Valid
4	Consistency in the use of symbols or icons	4	Valid
Jumlah		39	
Rata-Rata		78%	Valid

From the data listed above are the results of the calculation

$$P = \frac{f}{N} \times 100$$

$$= (39/50) \times 100\%$$

$$= 78\% \text{ valid}$$

Based on the results of the media assessment conducted by the language validator, a score of "78%" with the criterion of "Valid" It can be concluded that the Learning Media is "Valid" to be used

d)Description of Media Practicality Test Results  
In the product trial stage, the researcher conducted a practicality test with teachers at SD Muhammadiyah 18 Medan Perjuangan. The results of the analysis of the trial that have been carried out to teachers are seen from the following table.

**Table.4.5 Product Practicality Data by Teacher**

NO	Assessed aspects	Skor	Kriteria
1	Background selection	5	Highly valid
2	Suitability of the media to the needs of participants educate	5	Highly valid
3	Clarity of writing	5	Highly valid
4	Rankingmediaviews	5	Highly valid

5	Media size suitability	4	valid
6	The picture presented is not broken	5	Highly valid
7	Word square media in line with weather material	5	Highly valid
8	The narrative is clear and easy to understand	4	Valid
9	The material presented is complete and composed Derastically	4	Valid
10	Suitability of the material to the learning objectives	5	Highly valid
11	Sequential delivery of material	5	Highly valid
12	Presentation of material related to local culture	4	Valid
13	The media reveals the character of the object by Daily life	5	Highly valid
14	Media can increase the nature of curiosity	5	Highly valid
Sum		66	
Average		94,2%	Very Practical

The analysis data above is the result of the calculation of the formula:

$$P = \frac{f}{N} \times 100$$

$$= (66/70) \times 100\%$$

$$= 94,2 \% \text{ (sangat praktis)}$$

Based on the results obtained from the practical test of teacher media, word square media for learning science weather material, obtained results with a proportion of "94.2%". According to the teacher, word square media is included in the category of "very practical and does not need to be revised". Therefore, researchers can continue to the next stage.

The researcher also conducted a practical test on 10 participants in the third section of SD Muhammadiyah 18 Medan who will conduct a product practicality test. The results of the practicality test that has been carried out on students are seen from the following table.

Table 4.6 Practicality Analysis Data by Students

NO	Assessment Aspects	Learners									
		1	2	3	4	5	6	7	8	9	10
1	Does it have an attractive design?	5	5	5	5	5	5	5	5	5	5
2	Does the color match	5	4	5	5	4	5	5	4	4	5
3	Is the box on the screen written	5	5	5	4	5	5	5	4	5	5

	weather material with media use												
10	Are you The next lesson is like learning Which ones have you	5	5	5	4	5	5	4	5	4	5	4	5
<b>Sum</b>		48	48	48	48	48	48	46	47	47	47	47	
<b>Overall Average</b>		<b>4</b>											
<b>Sum</b>		<b>7</b>											

4	What are the questions contained in Word Square media	5	5	4	5	5	5	5	4	5	5
5	Are there	5	5	5	5	5	5	4	5	5	4
6	What is the	5	5	5	5	5	5	5	5	5	4
7	Is the Square is easy to	5	4	4	5	4	5	4	5	5	5
NO	Aspects of Research	Peserta Didik									
8	Is it by using word square. Are you	4	5	5	5	5	4	5	5	4	4
9	Is the teacher's	5	5	5	5	5	5	4	5	5	5

The analysis data in the bag is the result of calculations:

$$P = \frac{f}{N} \times 100$$

$$= (477/50) \times 100\%$$

$$= 95\% \text{ (sangat praktis)}$$

Based on the results obtained from the group trial students, the word square media for science learning with a proportion of "95.2%".

## B. Interpretation

This research aims to produce word square media with valid and pragmatic criteria for the development of Word Square media. The media was developed based on the needs of teachers and students at SD Muhammadiyah 18 Medan. The results of the research discussion that will be discussed in this study are: 1) the results of the discussion on the development of word square media, 2) the results of the discussion on the level of validity of Word Square media, and 3) the results of the discussion on the level of practicality of word square media.

### 1. Results of the Word Square Media Development Discussion

The development of Word Square learning media uses wordwall media on weather change materials at SD Muhammadiyah 18 Medan Perjuangan using the ADDIE model which consists

of 5 stages, namely the Analysis, Design, Development, and Implementation Evaluation stages. However, the research is limited to the implementation stage only. Researchers modify learning media as needed. In the small/limited group trial stage, it was carried out in class III A SD Muhammadiyah 18 Medan as many as 10 students. This trial was carried out by giving Word Square media directly to students to be observed and the student gave a questionnaire to be filled out by the student

## **2. Results of the Discussion on the Validity Level of Word Square**

Media The validity of Word Square media material experts was validated by the teacher of SD Muhammadiyah 18 Medan, Mrs. Witry Ismana, S.Ag. was carried out on April 27, 2024. The validation of media experts, Word Square media was validated by a lecturer at the University of Muhammadiyah North Sumatra, Mr. M. Afiv Toni S. Saragih, M.Pd. on March 26, 2024. The linguist validation, in the Word Square video, was validated by a lecturer at the University of Muhammadiyah North Sumatra, Mrs. Mutia Febriyana, S.Pd., M.Pd. on April 1, 2024.

The percentage results of the material validation aspect obtained 97% with a very valid interpretation, then the percentage of the media aspect obtained 92% with a very valid interpretation and then the percentage of the language aspect obtained 78% with a very valid interpretation. After validating and based on the validation results obtained on the Word Square media stated by the validator, it can be concluded that the Word Square media is suitable for use judging from the assessment of the validators of material experts, media experts and linguists stated with very valid criteria.

## **3. Results of the Discussion on the Practicality Level of Word Square Media**

The Result of the practicality of the questionnaire assessment that have been distributed to the homeroom teacher of class III A, namely Mrs. Fitratul Insani, S.Pd. at SD Muhammadiyah 18 Medan on April 25, 2024. And the student response questionnaire was

conducted at SD Muhammadiyah 18 Medan with a total of 10 students on April 25, 2024.

The results of the level of practicality of Word Square media obtained a score of 94.2% and for student responses obtained a score of 95 %. This means that Word Square media can be stated as "very practical" to be used during learning activities. Based on previous research (Andini M., 2018) explained that the results of the research on the validity of word square media and the activeness of students and students' responses to this word square media. This research was conducted in class XI of SMA Negeri 1 Bangsal with 20 research subjects. This type of research uses a 4D model. Based on previous research (Elly Syhaditi, 2019) Explains that research on the development of word squares as a medium in education. This research is an RnD (Researcher and Development) research. A total of 22 seventh-grade students of Al-Fatwa Kubu Raya were the subjects of this study. The results of the needs analysis revealed that the subject needed a real medium with attractive colors. Based on previous research (Rike Dewi Saputri, 2023) Explaining that word square is a teaching material that is a mode of learning that is like a game that trains students' ability to answer questions and find answers to suitable words in the answer boxes. This game, according to students, becomes more careful, independent, and thorough. This research aims to find out the development, feasibility, and effectiveness of word square teaching materials.

## **4. DISCUSSION**

The results of the level of practicality of Word Square media obtained a score of 94.2% and for student responses obtained a score of 95 %. This means that Word Square media can be stated as "very practical" to be used during learning activities. Based on previous research (Andini M., 2018) explained that the results of the research on the validity of word square media and the activeness of students and students' responses to this word square media.

## **5. CONCLUSION**

The development of word square learning media using wordwall media on weather change

material at SD Muhammadiyah 18 Medan Perjuangan using the ADDIE model consists of 5 stages, namely the analysis stage, Design, Development, and implementation Evaluation. However, the research is limited to the implementation stage only. Researchers modify the learning media as needed. Word square learning media uses wordwall in the weather information material at SD Muhammadiyah 18 Medan "Feasible" is used in boxing from the aspect of validity. The aspects of validity and practicality are judged from the results of the assessment by the Media Validator obtained a score of "92%", Material Validator "97%", Language Validator "78%", and student response "95%", with the criterion of "Very Practical", which means "Media"Worthy" to use in the teaching and learning process. Word Square learning media is very practical and can be applied to Grade III students of SD Muhammadiyah 18. This can be said to be practical because from the results of the assessment of the practicality of the media by teachers showing the result of a value of "94.2%". And the response of students is "95.2%", with the criterion of "Very Practical", which means that the media is "Suitable to be used in learning media

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#### NOTE:

All part of article is written by using font-family: Calibri, font-size: 11pt and space: 1, **exception** the title.