The Development of Worksheet Based on Mnemonic to Foster Students' Creative Thinking in Fourth Grade in Public Elementary School

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Abstract
This research is aims to develop teaching materials that is worksheet based on Mnemonic to foster students' creative thinking and know the effectiveness of worksheet. Research and Development (R & D) refers to the theory of Borg and Gall. The subjects of this study were experts in material validation, media, language, teachers, and students in fourth grade students of Public Elementary School 1 Kesumadadi. The instrument that used is a test to measure learning outcomes and students' creative thinking skills. The final product of this research is worksheet which has been validated by material experts, media experts, and linguists. The results of the research show that worksheet which is developed based on the results of the needs analysis of students can be used in curriculum 2013 that is effective for learning if seen based on the improvement of learning outcomes.
Keywords: Student Worksheet (LKPD), Mnemonic, Creative Thinking.

1.   Introduction
In National education it is explained that this type of education consists of formal, non-formal and informal education. Formal education consists of primary education, secondary education and higher education. Primary education consists of Public Elementary School(SD) / Islamic Elementary Schools (MI) with Junior High Schools (SMP) / Madrasah Tsanawiyah (MTs).

In 2013 there was a change in curriculum and a new curriculum was gradually implemented. Starting from Elementary Schools / Islamic Elementary Schools, the curriculum 2013 will be obtained gradually. According Nugraheni (2015: 251) the integrated thematic learning is a type of learning that gives a lot of attention to the development of students by providing concepts based on their level of development. The integrated thematic learning brings together several subject matter into the same theme.

Trianto (2012: 111) argues that worksheet is a student guide that is used to conduct investigation or problem solving activities. This worksheet can be in the form of a guide to training in developing cognitive aspects as well as guidelines for developing aspects of learning in the form of experiments or demonstrations. Furthermore, according to Siddiq (2008: 122) states that worksheet is packaged by emphasizing only on exercises, tasks or questions. Although only emphasizing this, worksheet still presents a description of the material but is presented briefly.

According to Amiryousefi and Ketabi (2011: 179) mnemonic is a memory that enhances learning strategies that involve student teaching to connect new information taught with information they already know. The use of mnemonic strategies can help students in capturing material that has been taught by the teacher or mentor, helping students to memorize lessons easily and effectively. Furthermore, according to Bakken and Simpson (2011: 79) mnemonic strategy is a systematic procedure to improve memory and make information more meaningful.

According to Suryadi and Herman (2008: 23) creative thinking skills are cognitive skills to generate and develop new ideas, new ideas as the development of ideas that have been born before and divergent skills to solve problems (from various points of view).

Therefore, the alternative used to foster creative thinking skills are by (1) Producing mnemonic-based worksheet that can foster creative thinking of fourth grade students of Public Elementary School1 Kesumadadi (2) Knowing the attractiveness of mnemonic-based worksheet for fourth grade students of Public Elementary School1 Kesumadadi (3) Knowing the effectiveness of mnemonic-based worksheet that can foster creative thinking fourth grade students of Public Elementary School1 Kesumadadi.

2.   Method
The research method that used in this study is research and development. The steps for using Research and Development (R & D) methods refer to Borg and Gall's theory (2003: 569-575), 1) Collecting research information, 2) Planning, 3) Developing the initial product form, 4) Early stage trials, 5) Product revision, 6) Main field test, 7) Product revision, 8) Operational field test, and 9) Final product revision.

The trial subjects in this study were 36 people consisting of 3 validator lecturers, 9 small group trial students, and 24 large group trial students. Teachers and students are fourth grade teachers and fourth grade students of Public Elementary School1 Kesumadadi.

The data collection phase in this development was obtained from filling out questionnaires by teachers and students. Questionnaire was used to obtain data on expert testing, small group test, large group test, attractiveness test. At the expert validation stage, the data was obtained from filling out questionnaires with material tests by expert lecturers on material, media, and languages.

Data on the effectiveness of the use of worksheet was obtained from the pretest and posttest given to fourth grade students of Public Elementary School1 Kesumadadi before and after using worksheet. Questionnaire data analysis techniques test the attractiveness, easiness, and usefulness of worksheet based on mnemonic by student response questionnaires.

The effectiveness of using worksheet is analyzed using validity, reliability, power difference, difficulty level and normalized n-gain value analysis. Furthermore, the n-gain value is interpreted using normalized gain tables according to Sundayana (2015: 151).

Table 1. Normalized Gain Categories

Percentage	Interpretation
$-1,00 \leq g \leq 0,00$	There was a decrease
$g = 0,00$	Fixed
$0,00 < g < 0,30$	Low
$0,30 \leq g < 0,70$	Medium
$0,70 \leq g \leq 1,00$	High

3. Results and Discussion

3.1 Research result

The results of this development research are worksheet based on mnemonic. The material developed is the theme of the 8 areas where I live, the sub-theme is proud of the area where I live in fourth grade of Public Elementary School. The results of each stage of the development procedure are as follows:

3.1.1 Preliminary Information Collection

The initial stage of the research was conducted by collecting data in the form of information on the learning process of Public Elementary School1 Kesumadadi. This is used as consideration and basic principles in the development of worksheet which is based on the acquisition of empirical data about how the profile and subject to be studied.

Based on the results of preliminary research conducted in the form of interviews and questionnaires needs in August 2017 carried out on Principals and fourth grade teachers and students in Public Elementary School1 Kesumadadi in Bekri Subdistrict, initial data was obtained as follows: worksheet development has not been conducted in Public Elementary School1 Kesumadadi. Lack of learning resources that support the learning process, because the learning resources used are still limited and have not attracted the attention of students. Learning process has not focused on students (student centered). The students who are still difficult to respond the questions given by the teacher have less curiosity about the material just taught. worksheet which has not spurred students to think creatively in learning.

Based on the results of the preliminary research, it is necessary to develop worksheet based on Mnemonic that is used by students at Public Elementary School 1 Kesumadadi so that the development of worksheet can improve students' creative thinking skills.

3.1.2 Planning

The Planning of worksheet development based on mnemonic includes the preparation of the worksheet Framework, the determination of the systematic order of material presentation, evaluation planning, preparation of assessment instruments.

3.1.3 Worksheet Development

The follow-up of the design in the planning phase, followed by worksheet development. worksheet preparation is based on aspects of content and presentation.

3.1.4 Product Validation

Product validation was carried out on expert validators, namely material validation, media validation, and language validation validated by Unila lecturers. Material validation obtained a value of 95.68. Media validation gets 89.00. Language validation has a value of 87.93. Validation Experts also provide advice and input on worksheet based on mnemonicand make improvements according to recommendations to improve product validation results.

The suggestions from material experts include: test instruments adapted to objectives, indicators developed in accordance with Basic Competencies, customized syntax based on Mnemonic learning models. Media experts suggest fixing the cover, adjusting to the school environment and residence, linking fictional stories with the culture of residence, especially the Lampung region, the color of the picture is more clarified. While linguists suggest correcting word choice, sentence structure and sentence effectiveness, fix the sentence that used according to enhanced spelling (EYD).

3.1.5 Product Revision
Based on the validator's advice, the researchers improved the worksheet as suggested. Based on the material expert test, several revisions were carried out, the test instruments were adjusted to the objectives, the indicators had been developed in accordance with Basic Competencies, the syntax had been adjusted based on the Mnemonic learning model. Media experts suggest fixing the cover, adjusting to the school environment and residence, linking fictional stories with the culture of residence, especially the Lampung region, the color of the picture is more clarified. While linguists suggest correcting word choice, sentence structure and sentence effectiveness, fix the sentence that used according to enhanced spelling (EYD).

3.1.6 Initial Product Trial
After making improvements that refer to suggestions from expert tests, the next is testing the initial product to 9 students in fourth grade B of Public Elementary School 1 Kesumadadi who represent students with high, medium, and low abilities. In the product trial the data was taken to determine the attractiveness of worksheet based on mnemonic.

3.1.7 Product Revision
Based on the results of the worksheet bsed on mnemonictrial, the results showed an increase in learning outcomes and the growing ability of creative thinking in students before and after learning using worksheet based on mnemonic, the attractiveness of worksheet based on mnemonic was good. It can be concluded that the worksheet based on mnemonic is not revised and is feasible to be tested in large groups.

3.1.8 Main Field Trial
The subjects of the large group trial were the fourth grade students of Public Elementary School 1 Kesumadadi which is total 24 students on May 21, 2018 to May 26, 2018. Before the learning activities at the first meeting, students have to do the pretest and posttest at the sixth meeting. This is intended to see the effectiveness of worksheet based on mnemonic whether they can foster the ability to think creatively from before and after the implementation of learning by using worksheet based on mnemonic.

3.1.9 Product Revision
The final product revision is done based on the results of hypothesis testing and findings in the field when the product is tested. Based on the results of hypothesis testing that has been done, the students' creative thinking abilities are increased which can be seen from the increased learning outcomes of students. Furthermore, based on the results of consultation with material experts, media experts, and linguists, it was concluded that this worksheet based on mnemonic was not revised and was feasible to be implemented.

3.1.10 Attractive Test of Student Worksheet
Attractiveness tests were carried out in the initial product trials and main field trials. This is intended to see the development of attractive worksheet based on mnemonic products or not to be used by students. Based on the results of the tests carried out by collecting student responses, the results obtained in the aspect of attractiveness are as follows.

Table 2. Interest Test Results

No	Category	Initial Product Testing		Main Field Test	
		Frequency	%	Frequency	%
1	Very interesting	2	22,22	12	50
2	Interesting	7	77,77	12	40
3	Interesting enough	0	0	0	0
4	Less attractive	0	0	0	0
5	Not interesting	0	0	0	0
Average		4,11		4,11	
Information		Interesting		Interesting	

This shows that the appearance of worksheet based on mnemonic according to the responses of students makes students interested in using worksheet and wants to keep on repeating and practicing using worksheet based on mnemonic.

3.1.11 Effectiveness Test of Student Worksheet
The effectiveness test is conducted to determine the effectiveness of worksheet in learning process that has been carried out. The effectiveness test is done to see the learning outcomes of students who refer to the ability to think creatively.

Based on the effectiveness test using n-gain, the results of learning to think creatively after using worksheet based on mnemonic is higher than before using the worksheet. Based on the recapitulation results, the average gain effectiveness of students is 0.64. There is an increase in learning outcomes of students before and after using worksheet based on mnemonic.

3.2 Discussion

3.2.1 The Development Productsof Worksheet based on Mnemonic

The learning activities of students contained in worksheet based on mnemonic use four main steps, namely underlining, linking lists, expanding the picture, repeating. The four components are then poured into thematic learning activities for students through the development of worksheet based on mnemonic which makes the activities of students become more active so as to foster students' creative thinking skills as expressed by Creativity according to Semiawan (1987: 8) Creativity is the ability to make new combinations or seeing new relationships between elements, data or things that already existed before. This is in line with the subsequent opinion, Munandar (1992: 47) defines creative thinking as an ability that reflects fluency, flexibility (flexibility), and originality (authenticity) in thinking, in the ability to elaborate (develop, enrich, detail) an idea.

Worksheet based on Mnemonic is designed according to the development of the Curriculum 2013 with thematic learning models to improve learning outcomes and foster students' creative thinking skills. The existence of this worksheet based on mnemonic can be used as an alternative solution to the problem because of lack of teaching materials in Public Elementary Schoolin learning material related to the area of residence. In addition, worksheet can be used as a solution to facilitate teachers in delivering material and attract students' interest in learning the material delivered by the teacher.

Although this worksheet only takes one of the themes and sub-themes in fourth grade, it does not reduce that this worksheet based on mnemonicis one solution or alternative to good teaching materials and can be used in learning. The development of this worksheet is suitable for use as a reference and companion for the development of teaching materials contained in student books and the latest teacher book in edition 2017 of the curriculum 2013.

3.2.2 The Attractive worksheet based on Mnemonic

During the initial trial and field trials, after students finished using the worksheet based on mnemonic, at the end of the sixth study students were given a questionnaire to find out the students' responses to the developed worksheet based on mnemonic. The results of the initial trial obtained an average of 4.11 with the Interesting category. Whereas based on the results of field trials, it can be seen that the results of the attractiveness get an average of 4.11 in a very interesting category.

Thus it can be concluded that worksheet based on mnemonic attracts students to use and wants to continue to repeat and practice using worksheet, students feel easy to use and understand the material with this worksheet. This is because in students worksheet have a mnemonic approach.

3.2.3 The Effectiveness of Worksheet Based On Mnemonic

The effectiveness test is conducted to determine the effectiveness of worksheet in the learning process that has been carried out. The effectiveness test is done to see the learning outcomes of students which refers to the ability to think creative. The effectiveness of the use of worksheet teaching materials is corroborated by the opinion of Yildirim, et al (2011: 52) which states that activity sheets can affect student achievement.

Based on the effectiveness test using n-gain, the results of learning to think creatively after using worksheet based on mnemonic is higher than before using the worksheet. Based on the recapitulation results, the average gain effectiveness of students is 0.64. There is an increase in learning outcomes of students before and after using worksheet based on mnemonic.

4.   Conclusion

The conclusions of this development research are that the product produced in this study is a worksheet based on Mnemonic that applied in fourth grade which is designed based on curriculum 2013; The worksheet based on mnemonic developed has attractive quality; Learning outcomes and creative thinking skills of students after using worksheet based on mnemonic were higher than before using worksheet based on mnemonic.

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