

## **The Development Of Student’s Activity Worksheet Based On Learning Cycle 7E In Thematic Learning Fifth Grade Of Elementary School**

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**Abstract:** *The objective of this research and developments is to produce student’s worksheet based on Learning Cycle 7E which more feasible, attractive, easy, useful and effective to improve student’s learning result in 5th grade of Elementary School. Type of research will be used, is the research and development that based to the theory of Borg & Gall. The population of this research was the 5th grade students of Elementary School in Sukarame District, Bandar Lampung. The sample was determined by purposive sampling technique that have 22 students in 5th grade (class A) of Elementary School 2 Waydadi as a major sample. The Data were collected using questionnaires and test questions. The results showed that student worksheet based on Learning Cycle 7E was suitable to be used in thematic learning in 5<sup>th</sup> grade of Elementary School. The student worksheet based on the Learning Cycle 7E developed was attractive, easy, and useful for students in thematic learning in 5<sup>th</sup> grade of Elementary Schools. Student worksheet based on Learning Cycle 7E that was developed was declared effective in improving student learning outcomes.*

**Keywords:** *student worksheets, learning cycle 7E, elementary school.*

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### **I. Introduction**

Education has a very important role in improving the quality of human resources. The quality level of human resources that own by the nation will affect the progress of a nation. Therefore, the quality of education must continue to be improved and refined by the times. The ability that must be possessed by students in education in the 21st century is Creativity, Critical Thinking, Communication, and Collaboration (4C) Bialik (2015: 1). The recommendation learning by the 2013 curriculum is thematic-integrative model. The integration is done in two ways, that is the integration of attitudes, skills and knowledge in the learning process and the integration of various related basic concepts. The 2013 curriculum is using thematic in application, that combining several interrelated subjects which were originally only applied in elementary schools, but now must be implicated at all levels of education. It is expected that in the application of the 2013 curriculum learning system can change the mainset of learning that has been traditional/conventional into contextual learning. which is, delivering meaning in contextualized learning materials.

The learning cycle 7E model described by Dina NurAdila (2015: 212-217) is a constructivism-based learning model consisting of seven phases in the form of Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend which are organized and centered on students so that student can actively find their own concepts. According to Nyoman et al (2018: 399) the critical thinking skills of students who learn through the local culture-based learning cycle 7E model are better than obtained by students who learn through learning discovery model, both students in higher and lower level schools. According to Qarareh (2012: 123) the use of the learning cycle has a massive impact on academic achievement. Researchers recommend learning cycle used in science learning, and it is need to do a research on the effects of this method on other materials. According to Lee (2014: 97) a students’ activity worksheet can be useful in terms of academic achievement. For example, as a supports for a particular classes. In addition, a students’ activity worksheet can be used by the students to construct the knowledge. According to Yuldirim (2011: 44) students’ activity worksheet improve learners' achievements. In the long terms, based on study of students’ activity worksheets in various subjects can be used to discover the effectiveness of the students’ behavior.

The learning result is a process of change in student towards the better. According Arikunto (2006:2) explained that the learning results are the results obtained by students which are usually expressed in the form of numbers, letters or words. According Mudjiono (2009: 3) learning result are the result of the interaction of teaching and learning acts. According to Suprijono (2012: 7) the learning result is the changes in behavior as a

whole, not only one aspect of humanism potential. Results that achieved by students can be seen when learning process takes place and after the learning process, which describe by the understanding of students in the field of subjects and learning materials. The Improvement of student learning result does not present itself in student. But, there need to be an increase in learning, both methods or learning resources that are used to improve students' learning abilities.

Related to the results of researchers' observation about teaching materials in students' activity worksheet that used by students are not made directly by the teacher, so it is not in accordance with the needs of students. The student activity worksheet that have been used formerly is from the publisher, and it have not yet guiding students to gain direct experience, it is causing students cannot develop their abilities. Learning method done by the teacher is oriented to the extent of completing the material contained only in the book and less correlated with the experiences by students directly. As of that the ability of students is not developed optimally even though the school has been used the 2013 curriculum.

Based on the analysis of the needs collected from the distribution of questionnaires obtained the results that 100% teachers have never applied learning cycle 7E in their teaching method. Based on this background, the researchers aim to develop the students' activity worksheet based on a learning cycle of 7E which is more feasible, interesting, easy, useful and effective in improving the learning result of fifth grade students of SDN 02 Waydai based on the 2013 Curriculum.

## **II. Methods**

This research is a based on Research and Development (R&D) study which was adopted from the Borg and Gall model. According to them, R&D is a development model in wherein research is used to design new products and procedures that are tested in the field, evaluated, and refined to full-filling certain criteria. Conceptually, the research and development approach include ten general steps, as explained by Borg & Gall.

The population in this research was fifth grade students of Sukabumi District Public Elementary School who had implemented the 2013 curriculum. The sample was determined using purposive sampling with the consideration that SDN 2 Waydadi is the 2013 Curriculum implementation model school and had a number of students who fit the criteria, in this case the sample that used was 22 students.

Data collection tools of student activity worksheets' development based on learning cycle 7E is using a questionnaire, which are the validation of the materials, media, and language. Material aspects of the student activity worksheet include conformity to the 2013 model and curriculum, and content quality. The media aspects of the student activity worksheets must contain didactic, construction, and technical requirements. The language aspects of the student activity worksheet include candor, communicative, writing, use of terms, symbols or icons. The attractiveness, convenience, and usefulness of the product is obtained from the results of the student attractiveness questionnaire which includes attractiveness, convenience, and usefulness. Learning result are obtained from the pretest and posttest learning using student activity worksheets which oriented to the learning cycle 7E model, using valid and reliable test instruments, and considering the level of difficulty and differenceness of the questions. This Instruments is using multiple choice questions. Product effectiveness test is conducted to see the ability of students' learning result before and after learning using the student activity worksheet based on the learning cycle 7E. N-Gain is used to analyze the increase in students learning result before and after learning by using a student activity worksheet based on learning cycle 7E.

## **III. Result**

Results of research and development of students' activity worksheet based on learning cycle 7E in fifth grade student of SDN 02 Waydadi, development of products with the development procedure refers to the Borg & Gall development model obtained the following results:

Research and Information; collecting information is done through preliminary research by identifying the learning process and collecting learning result documents in the fifth grade of Primary Schools in Sukarame District. The results of preliminary research are used as a consideration and basis for the development of student activity worksheets. This step needs to be done because this development research is trying out a teaching material in the form of student activity worksheets based on learning cycle 7E which the development must be based on empirical data about the profile and subject that under research. Based on observations of students' learning result and analysis of the needs of teacher and students in July 2019 in fifth grade of Primary Schools in Sukarame District.

Planning; at this stage, preparing materials and making product designs. This planning phase begins with determining the theme, assessment of Core Competencies, Basic Competencies, Indicators, formulating material, and compiling a grid of instruments to be developed.

Develop preliminary from of Product; steps for developing student activity worksheets are 1) Study of material in the student activity worksheets, 2) Preparation of student activity worksheet drafts based on learning cycle 7E. The initial product format development is carried out in accordance with the framework of the student

activity worksheets that have been compiled which consists of a) cover pages including: (i) the title determined based on the design stage, (ii) the name of the author of the student activity worksheet namely Devi Arisani, (iii) Identity of Participant in activity worksheets that designed for administrative purpose, (iv) supporting pictures to briefly describe the contents of the developed student activity worksheets, (v) target users of the students' activity worksheets that have been developed, b) an introduction, c) table of contents, d) basic competencies mapping, e) learning objectives, f) preparation the contents of the student activity worksheet. The prototype design results are then validated by experts. Design validation is done by experts, they are lecturers of material experts, media experts, and linguists.

**Table 1.**Results of Validation by The Experts

No.	Validator	Score
1	Material Expert	92.50
2	Media Expert	98.96
3	Linguist	90.38
Average		93.95

According to table 1, the results of the three expert validation tests is (1) the material expert test obtained an average score of 92.50, (2) the media expert test obtained an average score of 98.96, and (3) the validation test of linguist received an average score of 90.38. Based on the validation test of three experts were categorized as "Very Feasible" to be used.

Preliminary Field Testing;pre-trials test is conducted after the expert validation, pre-trials were conducted by small groups to assess the feasibility of the product being developed in the form of student activities worksheet based on the learning cycle 7E to measure learning result and the attractiveness, convenience, and usefulness of students based on student responses in the fifth grade of SDN 02 Waydadi. The number of respondents as many as nine people consisting of students with high categories, medium categories, and low categories.

Main Product Revision; after the initial product design is carried out to find whether there are still mismatches or errors in the product design to be corrected and as a refinement of the product to be developed. At this stage the researcher further corrects or revises the validated student worksheet based on suggestions for improvement from design validation.

Main Field Testing; after the design of product is improved, the learning cycle 7E based student activity worksheet is trialled in the second semesters fifth grade of SDN 02 Waydadi in 2019/2020 Academic Year. The large group trial subjects were 22 students of Class A. Before learning activities at the first meeting, the students initially carry out the pretest and posttest at the sixth meeting. It is intended to see the effectiveness of the student learning worksheet based on learning cycle 7E, whether there is an increase in learning result before and after learning is carried out using the student activity worksheet based on learning cycle 7E. Student learning result before and after using the student activity worksheet based on learning cycle 7E can be seen in table 2.

**Table 2.**Students Leranng Result in Field Trial

Class	Average Result		Enhancement	Enhancement (%)
	Pretest	Posttest		
Class VA	45.68	82.73	37.05	44.78

Based on table 2 shows in general there is an increase in learning result after learning by using student activity worksheets based on learning cycle 7E. The average pretest and posttest learning result of Class VA students was 45.68, increasing to 82.73, an average increase of 44.78%.

Operational Product Revision; Accoring to the results of effectiveness tests that have been carried out, which obtained from student learning result that have increase. Furthermore, based on the results of consultations with material experts, media experts, and linguists, it was concluded that the student activity worksheet based on the learning cycle 7E was no needs revised and was feasible to be implemented.

**Feasibility Test Student Activity Worksheet.**

Producing a feasible student worksheet based learning cycle 7E. The feasibility of the student worksheet based on the learning cycle 7E was obtained based on a questionnaire was given to the validation of material experts, media experts and language experts before being tested. Following are the results of the recapitulation of the validation assessment of material experts, media experts, and linguists presented in Table 2 as follows.

**Table 3.**Results of Validation by The Experts

No.	Validator	Score
1	Material Expert	92.50
2	Media Expert	98.96
3	Linguist	90.38
Average		93.95

Based on table 3, the average results of validation by experts showed 93.95 results with a very decent category.

Test of Attractiveness, Ease and Use of the Student Activity Worksheet

Producing the students activity worksheet based on learning cycle 7E that is interes, easy, and useful. Victory, convenience and expediency of the student activity worksheet based on the learning cycle 7E, it obtained based on the results of the questionnaire given to students in the major field trial class after learning. The following is a table of recapitulation results on the attractiveness, convenience, and usefulness of the student activity worksheet based on the learning cycle 7E of the major field trial students.

**Table 4.**Result of Attractiveness, Convenience, and Usefulness Test of Student Activity Worksheet Based on Learning Cycle 7E on the Major Field Test

No	Category	Attractiveness		Convinient		Usefulness	
		Freq	%	Freq	%	Freq	%
1	Very Attractive / Very Convinient / Very Useful	13	59.09	14	63.63	17	77.27
2	Interesting / Convinient / Useful	9	40.91	8	36.37	5	22.73
3	Quite Interesting / Quite Convinient / Quite Useful	0	0	0	0	0	0
4	Less Interesting / Less Convinient / Less Useful	0	0	0	0	0	0
5	Not Interesting / Not Convinient / Not Useful	0	0	0	0	0	0
The average score		4.32 (Very Attractive)		4.43 (Very Convinient)		4.35 (Very Useful)	

Based on table 4, it can be explained that the results of the test of attractiveness, convenience, and usefulness in the test of attractiveness, convenience, and usefulness with the final results are very interesting, very easy, and very useful. Based on the results of the student questionnaire, the student activity worksheet display based on learning cycle 7E is very interesting with a score of 4.32, very easy with a score of 4.43 and very useful with a score of 4.35 so that makes students interested and always want to repeat to use the sheet student activities. The student activity sheet also makes it easier for students to understand the material. In addition, the student activity sheet is very useful for students in increasing interest in the material, easy to understand, increasing understanding the concept of the material, achieving learning objectives, and helping to more undertand of competencies by working on evaluations.

Test of Students' Activity Worksheet Effectivity

Producing the effective student activity worksheet based on learning cycle 7E in improving the learning outcomes. The product effectiveness test was conducted to see a significant increase in the learning result of students before and after learning using the student activity worksheet based on learning cycle 7E. N-Gain is used to analyze the increase in learning result before and after learning using student activity worksheets based on learning cycle 7E. Here are the results of the Pretest-Posttest Gain after being calculated and presented in the table

**Table 5.**Results of N-Gain After Calculated

Aspect	Pretest	Posttest	Gain
Average	45.68	82.73	0.68

Based on table 5, the average Gain results showed 0.68, which means that normalized Gain is in the middle clarification, so the level of effectiveness is effective.

#### **IV. Discussion**

Product Students Activity Worksheet Based on Learning Cycle 7E is Feasible for Thematic Learning. The result of this research and development is product of student activity worksheet based on the learning cycle 7E that was developed is feasible in thematic learning. The development of the student activity worksheet based on the learning cycle 7E focused on fifth grade and adapted the R&D steps by Borg & Gall (1983: 784) using seven out of ten steps. The first stage is the initial research and information gathering, after the researcher knows the problem that occurred the researcher is planning to develop the student activity worksheet based on the learning cycle 7E that will be used by the students so that they can improve their learning result. Next step, the researchers compiled the initial product development of the student activity worksheet. In this step the researcher poured out the pattern of content development and the design of the student activity worksheet based on the learning cycle 7E is accordance with the steps of the learning cycle 7E. Furthermore, in this step the researchers conducted a validator test, the validator test was carried out by three validators they are material experts, media experts, and linguists with the aim to validate the developed product if it was accordance with the terms of development requirements so it is worth to be tested. The materials expert test results received an average score of 92.50, the media expert test obtained an average score of 98.96, and the validation of linguists received an average score of 90.38. The next stage is an initial trial, an initial preliminary trial conducted by a small group involving nine students. The results obtained are based on the pretest and posttest Obtained learning result of students. Then the researchers made a revision to improve the product. Next step of field trials, student activity worksheet products based on the learning cycle 7E on thematic learning are tried out in the learning process. This field trial stage is used to determine the effectiveness of student activity worksheet based on learning cycle 7E in improving student's learning result in the pretest and posttest. Based on the results of the effectiveness test that has been conducted, the data showed an increase in student learning result before and after using the student activity worksheet based on learning cycle 7E. Based on the results of the attractiveness tests that have been conducted, data showed an increase in the results of the student questionnaire in the initial trials and field tests of the main products with the category "very attractive" Therefore, the student activity worksheet product based on the learning cycle 7E is no need to revised and feasible to be implemented.

Products of Students Activity Worksheet Based on Learning Cycle 7E Interesting, Easy, and Useful in Thematic Learning. The result of this research and development is product student activity worksheet based on the learning cycle 7E that was developed that are interesting, easy, and useful in thematic learning. In the initial trial phase and field trials, after students have finished using the learning cycle 7E based student activity worksheets, at the end of learning session the six students are given a questionnaire to evaluated the students' responses to the studnets' activities worksheet based on the learning cycle 7E that have been developed. Preliminary trial results obtained an average of 4.17 in the interesting category, 4.39 in the very easy category, and 4.22 in the very useful category. While based on the results of field trials, it can be seen that the average results of 4.32 in the very interesting category, 4.43 in the very easy category, and 4.35 in the very useful category. It can be concluded that the student activity worksheet based on learning cycle 7E attracts students to use and wants to repeat and practice more using the student activity worksheet, students find it convenient to use and understand the material with this student activity worksheet. This is because in the student activity worksheet there is a learning cycle 7E approach. According to Fajar in Maswatu (2013:13) said that the learning cycle is "A learning model that is centered on students (student centers) which is a series of stages of activities that organized in such a way that students can more understand the competencies that must be achieved in learning by playing an active role". In line with the opinions expressed by Santoso (2005: 34) the learning cycle is an organization that provides convenience for mastering new concepts and for rearranging students' knowledge.

The Effectiveness of Student Activity Worksheet Based on Learning Cycle 7E in Improving the Learning Outcomes in Thematic Learning. The result of this research and development is the students activity worksheet based on the learning cycle 7E that was developed is effective in improving the learning outcomes in thematic learning. The effectiveness of a teaching material can be seen from whether there is increase or not of the student learning result after using the teaching material that has been provided. Knowing the effectiveness of use the students' activity worksheets based on learning cycle 7E is by looking at student learning result, where the high and low results obtained by students before and after using student activity worksheets based on learning cycle 7E. Learning in class using student activity worksheet based on learning cycle 7E can be effective if the student learning result after using the student activity worksheet are higher than before using the student activity worksheet. Effectiveness test is conducted to determine the effectiveness of the student activity worksheet in learning process that has been done. In this effectiveness test is conducted to known the student learning result. The effectiveness of the use of lerning materials for students' activity worksheets is raised by the opinion of Yildirim, et al (2011: 52) which states that the activity worksheet can affect student achievement.

Based on the effectiveness test using n-gain, the learning result after using the student activity worksheet based on learning cycle 7E is higher than before using the student activity worksheet. Based on the

recapitulation of the average gain in the students' effectiveness is 0.68, which means the normalized gain is in the classification of "Average", then the level of effectiveness is effective. According to the effectiveness test using n-gain obtained that learning result refer to the ability of students after using the student activity worksheet based on learning cycle 7E is higher than before using the student activity sheet.

## V. Conclusion

According to the results of research and development that have been done, researchers can conclude that: (1) Product of student activity worksheet based on learning cycle 7E that was developed are suitable to be used in thematic learning in 5<sup>th</sup> grade of elementary schools. (2) Product of student activity worksheet based on learning cycle 7E was developed is interesting, easy, and useful to be used in thematic learning in 5<sup>th</sup> grade of elementary school. (3) Product of student activity worksheet based on learning cycle 7E that are developed effectively can improve student learning outcomes.

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