DEVELOPING THEMATIC WORKSHEET BASED ON PROJECT FOR THE SUB TOPIC OF *LINGKUNGAN TEMPAT TINGGALKU* TO IMPROVE LEARNING ACHIEVEMENT FOR 4TH GRADE STUDENT OF SD NEGERI 020259 IN SUBDISTRICT OF EAST BINJAI

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Abstract

Developing thematic worksheet based on project is conveyed in accordance to the implementation of *Kurikulum 2013*. This study was done to develop such worksheet for 4th grade students at SD Negeri 020259, and to investigate the effectiveness of the worksheet in improving students' learning achievement. This research was conducted as Research and Development study formative evaluation model. The instrument used consisted of validating questionnaire, teachers' responses questionnaire, students' responses questionnaire, and test of achievement. Then, the data analyses were done by validating analysis by experts, analysis of practicality from questionnaires for students and teachers, and analysis of effectivity for the result of pretest and posttest. The analyses were carried by three steps: (1) self-evaluation for design, (2) prototyping by the expert review, one to one and small group trials, and (3) field test. The result indicated improvement by means of 30% on the experimental class, while the control class only achieved 17%. Then, there was also significant and positive influence of the worksheet toward improvement of learning achievement. Finally, the worksheet was also considered as practical media for learning, as 81% of teachers and 86% of students admitted it through the questionnaire of responses.

Keywords: Thematic Worksheet, Formative Evaluation Model, Learning Achievement

1. INTRODUCTION

Education refers to conscious effort to guide learners developing themselves toward expected maturity (Rosdiana, 2008:15). The maturity is not limited only by physical appearances, but also includes intellectual, social, and moral maturity. Then, education has important role to improve the quality of human resources that in turn, supporting the development of a nation. Thus, it is important to provide serious attention and specific treatment for education in order to adjust it to the development of global information.

A good educator or teacher has to possess ability to adjust himself or herself upon the development and implementation of new curriculum, which is made based on the change upon global need. In Indonesia, the weakness upon such ability becomes resistive factors to achieve good quality education. Such fact was also found during initial observation at SD Negeri 020259 in the sub district of East Binjai, that the available worksheet did not discussed the sub topic of *Lingkungan Tempat Tinggal* (surrounding neighborhood) as required by the curriculum. As the result, students could not achieved expected result since they did not get relevant and appropriate learning media.

On the other hand, the use of conventional approach as lecturing, individual task, abstract thinking method, and making teacher as the only resources during learning process proved that the teacher still could not implement student-centered learning, which affected the learning result. This bad affection was indicated by the test result of student; the average result was B-, which was lower than minimum passing grade criteria. Furthermore, such inappropriate learning process also made students could not get recognize their surrounding neighborhood, as this sub topic was not properly taught.

Relating to this case, the use of innovative and creative learning model is important to support optimum learning quality. Joyce (2011:449) stated that adjusting the learning model to the needs of learners would stimulate conducive learning environment, and would prevent unpleasant condition such as boredom and exhaustion during learning process. The good learning environment would provide positive influence toward the development of cognitive, affective, and psychomotor ability of students.

Based on the explanation above, this study was conducted in order to develop a creative, practical, and relevant learning material in form of student worksheet under the title "*Developing Thematic Worksheet Based on Project for the Sub Topic of Lingkungan Tempat Tinggalku to Improve Learning Achievement for 4th Grade Student of Sd Negeri 020259 in Subdistrict of East Binjai*".

2.   LITERATURE REVIEW

2.1.   Learning and Learning Achievement

Cronbach (in Dalyono 2010:212) stated, "Learning is shown by change in behavior as result of experience". Upon similar issue, Whittaker (in Mardianto, 2013:45) also stated that the process of behavior changing depended on the practice or training. These two opinions lead to the understanding that education refers to processes altering behavior toward expected outcome by using entire potencies that are possessed by learners through experiencing and practicing.

Learning outcome is the result expected from the learning process, which is conducted in accordance to the objectives and goals of education. Then, it is measured to investigate the concordance of learning process upon the objectives and goals of education (Purwanto, 2011:53-54). Kingsley divided learning result into three categories: (1) skills and habits, (2) knowledge and comprehension, and (3) attitude and aspiration. Thus, learning materials have to be adjusted to achieve those learning result (Sudjana, 2010:22). In addition, Bloom et al. (in Kurniawan, 2014:10) categorized learning result into three: cognition, affection, and psychomotor. Meanwhile, Gagne (in Richey, 200:92-94) made up five categories: (1) intellectual skills, (2) cognitive strategies, (3) verbal information, (4) motoric skills, and (5) attitude.

2.2.   Project-Based Learning

Thomas (2001:1) explained, "Project based learning can be defined brierfly as a model that orgenizes learning around projects". Meanwhile, Patton (in Prastyawati, 2015:23) stated, "Project based learning refers to students designing, planning, and carrying out an extended project that produces a publicly-exhibited output such as a product, publication, or presentation". These two experts considered that project-based learning focused on students' activities to comprehend certain concepts and principles by performing deep investigations toward problem to get relevant solution, which were implemented through specific project enabling students to experience meaningful learning and constructing their own comprehension.

2.3.   Learning Materials and Student Worksheet

Learning materials refer to any supporting materials used by teachers or instructors during learning process. Then, it may appear in the form of written on non-written materials. Learning materials enable students to learn certain basic competence systematically that they accumulatively can comprehend the entire competences as integrated part (Majid, 2008:173).

Majid (2008:174) also mentioned the form of learning materials as in the following.
1.   Visual learning materials in form of printed materials,
2.   Audio learning materials,
3.   Audio-visual learning materials, and
4.   Interactive-multimedia learning materials

Student worksheet is included as visual learning material. Then, Prastowo (2011:205) explained the importance of worksheet toward learning process, as mentioned below.
1.   It minimalized the role of teachers; on the other hand, it stimulated learners to be actively involved in the learning process.
2.   It was simple learning materials, yet, it was rich of information along with tasks and assignments for practicing.
3.   It eased teachers in delivering lesson for students.

3. METHODOLOGY

3.1.   Approach and Type of Reserach

This study was conducted as Research and Development by using formative evaluation model, which consisted of three phases (Plomp and Nieveen, 2010:28). Then, this research was done at Sekolah Dasar Negeri (State Elementary School) 020259 in the sub district of east Binjai.

The procedure was adapted from the model of formative evaluation development consisting of three main phases: (1) self-evaluation, (2) prototyping, and (3) field test. Self-evaluation phases comprised of the need analysis and designing. The analysis encompassed the curriculum contents, students' need, and appropriate materials, while designing consisted of arranging test, selecting media, selecting format, and initial layout (draft 1). Prototyping phase consisted of expert review, one-to-one trial, and small group trial. The experts reviewed language and layout feasibility, while on the similar time, a copy was trialed for a student, or known as one-to-one trial, that he provided comment, suggestion, and did the task. The suggestion from this phase became consideration upon the development of draft 2, which given to a group consisting of five students as small group trial; those students came from 5th grade because they had learned the material. During this phase, questionnaire regarding the practicality of worksheet was also given for students and teachers.

The last phase, field test, was done by teaching subject using the worksheet. The practicality of worksheet was also investigated by using students' responses questionnaire, while the effectivity was investigated by providing pretest and posttest.

3.2.   Instruments

The data consisted of two types, qualitative data and quantitative data. The qualitative data were collected by using validating sheet from expert and questionnaire for student's responses and questionnaire for teachers' responses. Meanwhile, the quantitative data were gathered by using test in form of pretest and posttest, which were conducted as multiple-choice test. The indicator used was *Kriteria Ketuntasan Minimal* (minimum passing grade), as used at the school of research.

3.3.   Data Analyzing Techniques

The questionnaire, which was developed by using 4 point Likert Scale, was analyzed by using table of validity criteria (Sugiyono, 2015), as in the following.

Table 1. Validity Categories

Interval	Criteria
81%≤X<100%	Very Good
61%≤X<80%	Good
41%X<60%	Average
21%X<40%	Less than Average
0%X<20%	Bad

From the table, it could be noted that the valid learning materials at least had to possess the interval of 61%, which meant it was good. If the criteria from the worksheet were still lower than good, revision would be taken. Then, regarding the practicality, a good worksheet at least had to be noted as practical by the 80% of teacher, which was discovered by the questionnaire. Then, a good worksheet referred as at least 85% of students passed the minimum passing grade after studying by it.

4. RESULT AND DISCUSSION

This study was conducted as Research and Development, which produced a thematic, project-based worksheet to improve learning achievement of 4th grade students at SD Negeri 020259 East Binjai. Then, the product was categorized as a feasible worksheet it met the criteria of validity, practicality, and effectivity. The product was developed in accordance of formative evaluation development model consisting of three phases: self-evaluation for design, prototyping by the expert review, one to one and small group trials, and field test.

The first phase was conducted by analyzing and initial designing. The analysis encompassed the study about curriculum, particularly on basic curriculum. Then, after getting the brief insight about basic competence and the indicators, researchers analyzed the characteristics of students in order to adjust the content of worksheet.

Based on those considerations, researchers made the initial lay out design of product, which initiated by compiling 26 questions of multiple test. Pictures and activities were also designed to help students learning easily. Format selection is done to design instructional material to be compiled, instructional content and model to be applied on student worksheet.. The final design was a worksheet completed with tests and key answers.

The second phase was validation by experts that investigated the feasibility upon the materials, design, and language use. The result from this phase indicated that the worksheet gained 83% upon material feasibility meaning very good; upon design, it gained 73% for the first meeting and 94% for the second, the average score was 83.5% meaning very good; upon language aspect, it gained 79% that meat good. On similar time, one-to-one trial was done, that the suggestions from the student were compiled in the following table.

Table 2. Student's Suggestion on One-to-one Trial

No	Comments	Revision
1.	Uninteresting color	Recoloring
2.	Less picture	Increasing the number of picture
3.	Error typing on assignment part	Spelling and grammatical check
4.	Too much tasks	-

The following phase was small group trial, which was conveyed particularly to investigate the practicality by deploying questionnaire of responses for students and teachers, and the result was displayed in the following table.

Table 3. The Percentage for Teachers' Response

No	Aspect	Meeting			Average
		1	**2**	**3**	
1	Material	73%	80%	86%	80%
2	Design	73%	83%	92%	83%
3	Language	75%	81%	88%	81%
	Total	**221%**	**244%**	**266%**	**81%**

After the small group trial for five students, the percentage was 82% that was shoed by diagram 1, which meant that the worksheet was practical, and ready to be deployed for field test.
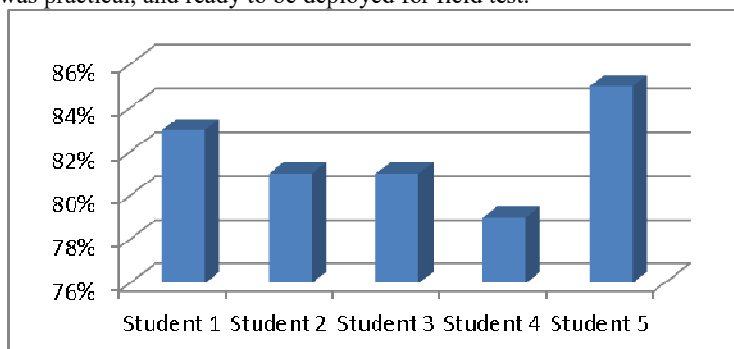

Figure 1. Questionnaire for Student's Response

The last phase was field test, which was done by several steps. The first was conducting pretest for both class, IV-A as control class, and IV-B as experimental class. Then, the second was using worksheet for learning. The final step was conveying posttest for both classes. The recapitulation of score from pretest and posttest was displayed in the following table.

Table 4. Recapitulation of Score

No	Activity	Passed Students	
		IV-A	IV-B
1	Pretest	69%	61%
2	Postest	86%	91%
Improvement		**17%**	**30%**

The Gain score for IV-B was 0.7, which if compared in accordance to the table of Gain criteria indicated as high. This result led to the conclusion that the worksheet was proper to be used in improving students' achievement upon the sub topic of *Lingkungan Tempat Tinggalku*.

Questionnaire for students' response revealed that 86% of students considered that the worksheet was practical, as displayed in the following diagram.
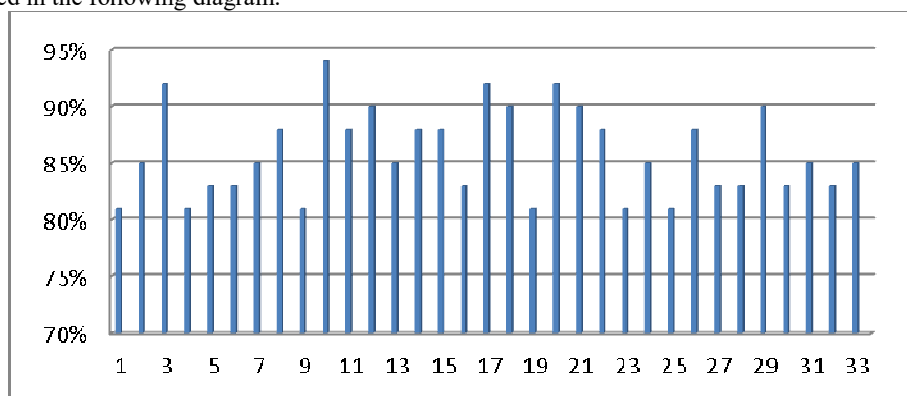

Figure 2. Questionnaire for Student's Response upon Practicality Aspect

5. CONCLUSIONS and SUGGESTION

5.1. Conclusions

1. The worksheet had met the criteria of validity and practicality. The validity was examined along the trials on draft I, draft II, and drat III by consulting to the experts and revising the weaknesses. The criteria of practicality was indicated by (1) 86% of students responses considering it as practical, and (2) 81% of teachers' responses also noted similar statement.
2. The criteria of effectivity were indicated that after the use of worksheet, 91% of students could pass the minimum passing grade. The worksheet could improve learning result with Gain score was 0.7, which categorized as high.

5.2. Suggestion

1. It will be better for teachers not to use worksheet as the only learning material.
2. For other researchers can be used as a reference and input on subsequent research with different sub topics and other knowledge increase

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