

The Development of Learning Devices based on Local Wisdom to Train Creative Thinking Skills of Students at SDN 21 Kota Ternate

Rusdi Hasan¹, Mardia Hi. Rahman², and Astuti Salim²

¹*Civics Education Study Program, Khairun University, Ternate City-Indonesia*

²*Physics Education Study Program, Khairun University, Ternate City-Indonesia*

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Abstract: Learning devices based on local wisdom is one of the innovations in developing learning devices that are expected to help teachers, especially elementary school teachers (SD) in the learning process. This research was held because there are still teachers who have not been able to develop students' creative thinking skills especially primary school students. This study aims to develop learning devices based on local wisdom that can train students' thinking skills and develop models of assessment of students' creative thinking skills. This research is a development research carried out by referring to the 4-D development model, namely Define, Design, Development and Disseminate. The subjects of this study were teachers and students of grade V SD Negeri 21 Ternate in the academic year 2018/2019. Learning device quality data is collected with validation sheets, implementation sheets, teacher and student response questionnaires, and critical thinking skills tests. The results of the research indicate that the learning devices based on local wisdom were able to improve students' critical thinking skills on the theme of 2 clean air for health on the sub theme of the importance of clean air for breathing. The learning device has the characteristics of each learning activity and subject lesson in the student's book, teacher's instruction book, or lesson plan based on the stages of discovery learning model.

1 INTRODUCTION

Local wisdom-based learning has been proven to develop the positive character of elementary students (Mannan, Sopyan and Sunarno, 2015). Development of well-designed of learning lesson plan is proven to be able to improve students' critical thinking skills (Prihartanto, 2016). Current learning, especially at the elementary level, is still too focused on the teacher so that students' creative thinking skills are not developed. As a solution, learning using various models, approaches and learning strategies that are in accordance with the subject matter must be able to be done.

However, the elementary school teachers have not been implemented the lesson plan properly. Therefore, this research focused on the development of lesson plan based on local wisdom to train creative thinking skills.

Creating or forming a new idea from the results of thinking is a creative way of thinking. Creative thinking is an ability by individuals to find various solutions of a problem at hand. In other words, if an

individual has the ability to think creatively, it will make him or her has good abilities in solving or finding answers to the problems at hand. Ginsberg & Opper (1969) in Kabouropoulou (2012) said that the purpose of education is very important to build understanding, students can verify and not easily accept something that has been done. Many discussions and research on creative thinking have been done by Emma Gregory, Mariale Hardiman, Julia Yarmolinskaya, Luke Rinne, and Charles Limb (2013) in his writing said that the students' ability to think creatively will arise because it is influenced by several factors that can be directly manipulated in class, for example by giving students the opportunity to ask questions. Carter & McRae, 2014; Craft, Hall, & Costello, 2014; Sternberg & Williams, 1996, (Mardia Hi. Rahman, 2017) said that developing students' creative thinking skills requires a creative teacher. A creative teacher is a teacher who is able to actualize all the abilities to educate, train, and guide students optimally according to the expected goals. Furthermore Torrance and after (Hamzah and Kimberly. Griffith, 2006) said that to make students

creative learning by the way students can explore, question, experiment, manipulate, listen, and test problems they face. Students will learn better, and think more critically and can think creatively if they are or study in a safe environment. Setting a safe environment will make students feel comfortable to express their opinions and ideas, take risks, take the change, be creative, and care. Preliminary studies conducted at SDN 21 Kota Ternate, found that the learning devices developed by the teacher were still imitating and did not develop by themselves, which resulted in not using learning models or learning strategies that could increase students' creative power.

The development of learning devices carried out in this study is the development of learning devices based on local wisdom to practice the creative thinking skills of elementary students. The location of SDN 21 Ternate is near the market and crossing port, where the local wisdom of the community environment is still very strong, but if not cultivated continuously it will be lost due to the development of this region.

2 LITERATURE REVIEW

2.1 Creative Thinking Skill

Creative thinking is a habit of the mind that is trained by paying attention to intuition, enlivening the imagination, expressing new possibilities, opening an amazing perspective, and generating unexpected ideas (Elaine B. Johnson, 2006). Creative thinking skills are an ability to develop and find new ideas that are original, aesthetic and constructive, which relate to views and concepts and emphasize aspects of intuitive and rational thinking, especially in using information and materials to bring up or explain it with the original perspective of thinkers. Liliawati and Puspita (2010) say that creative thinking skills are cognitive skills to bring out and develop new ideas, new ideas as the development of previously born ideas and skills to solve divergent problems (from various perspectives).

Furthermore Liliawati and Puspita (2010) say that the aspects of creative thinking skills include the following aspects and indicators:

- 1) Fluency (thinking fluently) with indicators: answering with a number of answers if there is a question, fluently expressing his ideas, can quickly see errors and weaknesses of an object or situation.

- 2) Flexibility with indicators: providing various interpretations of an image, story, or problem, if given a problem usually think of various different ways to solve it, classify things according to different divisions (categories)
- 3) Originality (originality thinking) with indicators: after reading or hearing ideas, work to complete new ones.
- 4) Elaboration with indicators: looking for deeper meanings for answers or problem solving by carrying out detailed steps, developing or enriching other people's ideas, trying / testing details to see the direction to be taken.

2.2 The Local Wisdom in Learning at Elementary School

Local wisdom is formed as a cultural superiority of the local community as well as geographical conditions in a broad sense. Local wisdom is a product of the past culture that should be continuously taken into account in life. Although it is locally valued, the values contained are considered to be very universal. (<http://filsafat.ugm.ac.id>).

The existence of local wisdom in each region is not without the functions, but has functions that can enrich the atmosphere of the area. The functions of local wisdom according to Sartini (2006) are: 1. Serves for the conservation and preservation of natural resources. 2. Serves for the development of human resources. 3. Serves for the development of culture and science. 4. Serves as advice, trust, literature and taboos. 5. Social meaning such as the communal integration ceremony / relatives. 6. Meaningful social, for example at the agricultural cycle ceremony. 7. Meaningful ethics and morals. 8. Meaningful politics, for example the ceremony of the *ngangkuk merana* and the power of the *patron client*.

Preliminary study conducted by researchers at SDN 21 Kota Ternate, It was found that most teachers in this school did not develop learning devices well by using various models, strategies and learning approaches, moreover they could integrate local wisdom in the surrounding environment. In the observations of researchers, most teachers are more concerned with cognitive abilities than cognitive, affective and psychomotor abilities. This is what encourages researchers to conduct research on the development of learning devices based on local wisdom. This research is intended to help teachers to develop learning devices properly and correctly which will result in the learning process going well.

If the learning process goes well and can enable students to search, develop and find their own concepts correctly, the thinking process of students is getting better and will make students more creative in developing their abilities.

3 METHOD

This research is a development research using the learning device development, Thiagarajan et al, namely 4-D model (define, design, develop, disseminate). Learning devices to be developed are based on local wisdom to train students' creative thinking skills which include, The Lesson Plans (RPP), learning models, learning approaches, and student worksheets (LKS).

The research process can be illustrated in the following flow chart:

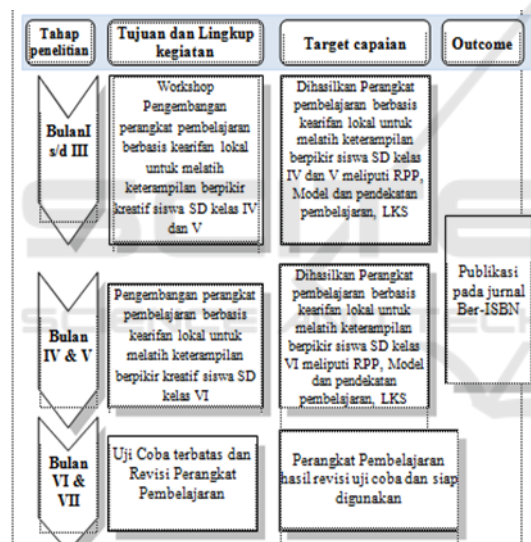


Figure 1. Flowchart of research

4 RESULT AND DISCUSSION

4.1 The Product Development

The main product in this study is a local wisdom-based learning device, especially at class V in odd semester with theme 2. This device consists of Lesson Plans (RPP) and Student Worksheets (LKS). The first step in the development of local wisdom-based learning devices conducted by researchers was to analyze the curriculum and syllabus that had been

prepared which became the basis for the preparation of Lesson Plans (RPP) and Student Worksheets (LKS). The purpose is that the learning devices developed (RPP and LKS) are not different from the curriculum and syllabus.

The development of local wisdom-based learning devices carried out is to include local elements that exist around the school environment to be used as a learning media and foster awareness of students about the importance of utilizing and maintaining the environment.

In addition to research activities to develop learning devices based on local wisdom, the researchers also conducted workshops to train teachers to make their own learning devices without imitating the results of the KKG activities. In fact, there are still teachers who imitate other teachers' RPP or because of the work of the KKG.

4.2 The Product Assessment

The assessment of products produced is carried out by two people who have competence in their fields. Product assessment uses instruments compiled by researchers. This product assessment is intended to get suggestions, input and criticism to complement the products developed. The results of the assessment by the two experts can be concluded that the learning devices developed (RPP and LKS) are in a very good category, namely the average assessment of 86.36% and can be said to be feasible to use but needs to be improved.

4.3 The Product Revisions and Final Product

Product revisions are carried out aimed at improving in order to obtain adequate products which is based on the needs in the field. In this research, in addition to obtaining quantitative data, it also obtained qualitative data in the form of suggestions and input on learning devices so that they can be developed better.

These suggestions and criticisms were then followed up by researchers to obtain quality learning devices that were very feasible to use. Suggestions and criticisms obtained from experts can be seen in Table 1 below:

Table 1: Suggestions and Criticisms by the Experts.

Aspects	Suggestions and criticisms
Formulation of indicators of learning success	It should be noted the description of each core competency
Selection of learning material	Learning material is in accordance with the teacher's book and student book
Organizing learning material	Need to multiply material from other sources besides student books and teacher books
Selection of learning resources	Use other resources to enrich students' knowledge
Learning scenario	Scenorio learning is adapted to the syntax of the learning model
Assessment	Assessment rubric is attached
Use of language	Note the procedure for writing and using languages that are in accordance with the enhanced Indonesian spelling system (EYD).

Learning devices developed in this study are Lesson Plan (RPP) and Student Worksheets (LKS), but the LKS developed is based on local wisdom around the school environment that is easily utilized to serve as a media or other learning resource. Based on the motivation, the development research stage is limited to development only, which was then tested by fifth grade teachers of SDN 21 Kota Ternate.

Based on the results of the assessment by two experts who stated that the learning device developed was very good and feasible to use, but there are some suggestions and criticisms for the revision of device development. Furthermore, the results of the assessment of the two experts can be presented in Table 2 as follows:

Table 2: Results of Expert Appraisal of Local Wisdom Based Learning Devices.

Aspects	Feasibility Percentage	
	Evaluator 1	Evaluator 2
Formulation of indicators of learning success	92.73	84.55
Selection of learning material	92.73	87.27
Organizing learning material	92.73	77.27
Selection of learning resources	90.91	80
Learning scenario	89.09	81.82
Assessment	87.27	81.82
Use of language	90.91	80
Average	90.91	81.82

The results stated in the table can be said that what needs to be considered for revisions is the aspect of Organizing learning material, Learning scenario and Assessment. The development of devices in the aspect of organizing learning materials is recognized that the material is still limited, especially by using other learning resources. The source book that is mostly used is student books and teacher books as guidelines for presenting material. Whereas in the aspect of the learning scenario, there are several lesson plans (RPP) that are considered inaccurate in the use of learning models with the material and conditions of students and school environment, especially in the use of local wisdom in the environment around the school. Furthermore, relating to the assessment, it can be seen that at the time of the development of learning devices based on local wisdom, it has not been detailed in writing the assessment rubric and scoring guidelines. From the results' assessment of team's evaluators, the researcher followed up by improving the learning device developed.

The overall the results of the assessment from the evaluators can be concluded that the RPP developed is very good and feasible to use, because the evaluation results of the evaluators on average are in the very good category of 86.36%. Furthermore, the results of the expert or evaluators can be seen in Figure 1 below:

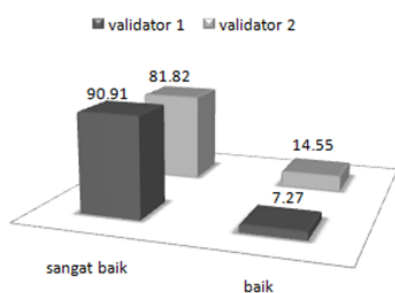


Figure 1: Form of Thematic RPP Assessment.

Learning devices that have been compiled are then tested by fifth grade teachers of SDN 21 Kota Ternate. When conducting a trial in the teacher's opinion, the learning devices developed greatly to improve students' conceptual understanding and train students to be creative and develop their thinking skills. The area or environment around the school is an environment that is close to the market, therefore the teacher can take advantage of the environment to introduce students to the procedures for developing business related to social studies material, namely types of businesses, interviewing traders about how to maintain market cleanliness, noise, pollution and others related to clean air science materials for health. In addition, students are given examples of using used goods as learning media and given project assignments to be completed by students.

After the trial, the teacher held an evaluation to test the students' ability to understand the concept being taught and asked students to do a project assignment that is making human respiration using local wisdom in the school environment as a form of evaluation to determine students' creative thinking skills. The results of student project assignments on average are in the very good category of 95.2%. From these results it can be said that using local wisdom-oriented learning devices can improve students' critical thinking skills on the theme 2 of clean air for health on the sub-themes of the importance of clean air for breathing. The learning device has the characteristics of each learning activity and Learning Materials presented in student books, teachers' manual, and lesson plans in accordance with the stages of discovery learning models and other models in accordance with the characteristics of the material. The results of student project assignments can be illustrated in Table 3 and Figure 2 below:

Table 3. Project Task Results of Fifth Grade Students of SDN 21 Kota Ternate

No.	Rated aspect	Percentage of Scores		
		Good	Enough	Less
1	Project task planning skills	94%	6%	
2	Skills in preparing tools	100%		
3	Skills for making work procedures	97%	3%	
4	Skill of stringing tools	97%	3%	
5	Skills for compiling reports	88%	12%	
Average		95.2%	4.8%	

The results of the assessment of project assignments of students on average are in the very good category, then local wisdom-based learning devices can improve students' creative thinking skills. The results of the project assignments in table 3 can be seen in the aspects of skill in compiling reports even though they are in a very good category, but the teacher needs to explain again about the systematic preparation of reports in accordance with the rules of compiling a work.

5 CONCLUSIONS

The results of the research showed that local wisdom-oriented learning devices were able to improve students' critical thinking skills on the theme of clean air for health on the sub-themes of the importance of clean air for breathing. Learning devices have the characteristics of each learning activity and learning materials presented in student books, teacher manuals, and lesson plans in accordance with the stages of *discovery learning models*.

From the results of the validation by the two experts, it can be concluded that the lesson plan used is an average of 86.36%, the category is very good and feasible to be used as a tool in the learning process. Therefore, the scope of the research can be enlarged for each grade level and not limited to the odd semester of fifth grade. And Get to know more about the local wisdom around us, in order to achieve more innovative learning devices.

REFERENCES

- Chandrasari, Dafik & Irfan. 2016. Pengembangan Perangkat Pembelajaran Berbasis Constructive Controversy Approaches dan Conflict Resolution Untuk Meningkatkan Kemampuan berpikir Kritis Peserta Didik. Prosiding Seminar Nasional Pendidikan Matematika, Universitas Madura.
- Desi F. Wulandari, Ida Hamidah, Agus Setiawan, 2014. Physics of Learning Strategy to Train Critical and Creative Thinking Skills. *International Journal of Science and Research (IJSR)*. Volume 3 Issue 11.
- Gregory, Emma., Hardiman, Mariale., Yarmolinskaya, Julia., Luke, Rinne., and Limb, Charles. 2013. Building Creative Thinking in the Classroom: From Research to Practice. *International Journal of Education Research*. Vol.62.
- Elaine B. Johnson. 2006. *Contextual Teaching and Learning Menjadikan Kegiatan Belajar Mengajar Mengasyikkan dan Bermakna*. Bandung: MCC.
- Hadzigeorgiou, Fokialis., and Kabouropoulo., 2012. Thinking about Creativity in Science Education. *Creative Education*. Vol. 3 No. 5.
- Hamza dan Kimberly G. Griffith. 2006. Fostering Problem Solving & Creative Thinking in the Classroom: Cultivating a Creative Mind. *National Forum of Applied Educational Research Journal-Electronic*. Vol 19. No. 3.
- Joolingen, W.V. 1999. Cognitive Tools for Discovery Learning. *International Journal Of Artificial Intelligence in Education (IJAIED)* 10.
- Liliawati dan Puspita, 2010. *Efektivitas Pembelajaran Berbasis Masalah dalam Meningkatkan Keterampilan berpikir Kreatif Siswa*. Prosiding Seminar Nasional Fisika. Bandung.
- Mannan, Sopyan dan Sunarno, 2015. Pengembangan Perangkat Pembelajaran Berbasis Kearifan Lokal untuk Mengembangkan Karakter Positif Siswa SD. *Jurnal Inovasi dan Pembelajaran Fisika*. Vol. 2 No. 2.
- Mulyasa, 2007. *Standar Kompetensi dan Sertifikasi Guru*. Bandung: Remaja Rosda Karya
- Nasution, S. 2008. *Berbagai Pendekatan dalam Proses Belajar dan Mengajar*. Jakarta: Bumi Aksara.
- Mardia H.R., 2017. Using Discovery Learning to Encourage Creative Thinking. *International Journal of Social Sciences & Educational Studies*. Chapter 4 Vo. 4 No. 2. Ishik University.
- Mayer, R.E. 2004. Should There Be a Three-Strike Rule Against Pure Discovery Learning The Case for Guided Methods of Instruction. *American Psychological Association*. 59(1).
- Sartini. 2006. *Menggali Kearifan Lokal Nusantara Sebuah kajian Filsafati*. <http://filsafat.ugm.ac.id>, Accessed 30 April 2017.
- Shalin Hai-Jew. 2008. Scaffolding Discovery Learning Spaces. *MERLOT Journal of Online Learning and Teaching* Vol. 4, No. 4.