

Development of 2013 Curriculum Teaching Materials on the Theme Always Save Energy Class IV Elementary School Based on Project Based Learning

Devi Afriyuni Yonanda¹, Titin Nuraeni², Dudu Suhandi Saputra³, Reza Rachmadtullah⁴

Universitas Majalengka, Indonesia¹
Universitas PGRI Adi Buana, Surabaya., Indonesia^{2,3,4}

{deviyonanda1990@gmail.com¹}

Abstract. This research is motivated by the fact that there are still many teachers who have not maximized learning such as developing the required learning materials or media. Teaching materials in the form of textbooks are one of the media that has an important role in improving the quality of education. This research method uses research and development with research procedures namely (1) needs analysis, (2) Development of teaching materials (3) validation of teaching materials that have been developed. The readability test results of this teaching material also show that the readability criteria are easily understood with the average value of students being 88%. Based on the exposure of the research that has been done, the development of the 2013 curriculum theme material always saves energy in class IV Elementary School based on Project Based Learning is declared valid

Keywords: Learning Materials, Teaching Materials, Education

1. Introduction

The learning model is an important thing that teachers must understand, so in this case, the teacher must be as smart as possible to choose a learning model that is suitable to be applied in the 2013 Curriculum learning [1]. Through learning, students must be able to apply their knowledge into everyday life and can create a work so that students can also develop their creativity. With this in mind, the learning model that can be applied in the 2013 curriculum is one of the Project Based Learning models [2]–[7]. The Project Based Learning model is a learning model that involves projects in the learning process. This learning is student-centered and involves students in working on a project so that through this activity students will be able to develop their creativity[5], [8]–[10].

Learning activities also cannot be separated from teaching materials. Teaching material is a media and learning resource that is capable of transforming life science and values related to the competencies taught to students. Jennifer Evers et al. [11] that research has documented 75 to 90 percent of the time spent on social studies based on textbooks. Prastowo[12] that textbooks provide interesting material for students; textbooks also help students to be able to repeat lessons or get new lessons so that students' knowledge increases. Thus, the development

of teaching materials must meet several criteria above. One of the teaching materials that have an important role in improving the quality of education is textbooks [13].

Based on the results of a preliminary study conducted by researchers at BabakanAnyar 1 Elementary School, Panyingkiran Elementary School, and MajakengkaKulon II Elementary School, information was obtained that the implementation of the 2013 Curriculum was partially intact, but in its implementation there were still some problems that occurred in implementing learning that refers to the 2013 curriculum. These problems include 1) the teacher still does not understand the 2013 curriculum, 2) the teacher still lacks an understanding of the learning model that can be applied in the 2013 curriculum, 4) in the learning process the teacher still refers to the handbook provided by the government, so that the teacher does not develop the material learning, 5) teachers still do not maximize use

Meanwhile, the teacher is still unable to develop teaching materials independently, so that in the implementation of learning the teacher still refers to the teacher's book given by the government. Therefore, it is necessary to develop teaching materials that refer to the 2013 curriculum. Through the development of the 2013 Curriculum teaching materials, it is hoped that the instructional material that is created can be better understood by students so that learning is more meaningful and enjoyable.

2. Method

This study uses R & D (Research and Development) research according to Borg & Gall. According to Borg & Gall [14], [15] States that basic research and development is a process used to develop and validate products developed. The development of the 2013 curriculum teaching materials with the theme of always saving energy in class IV of Primary School-Based Project Based Learning is development research that is directed to produce teaching materials that have been developed based on Project Based Learning. This research was conducted on fourth-grade students of the elementary School conducted at Babakan Anyar I Elementary School, Panyingkiran I Elementary School and Majalengka Kulon II Elementary School in March 2018. This research was carried out by systematically developing teaching materials. These steps are (1) Preliminary Study, (2) Planning, (3) Product Design, and (4) Product Validity,

Step (1) is the first step of development research. The activities carried out in this preliminary study are literature study, identification of needs, and problem identification. Step (2), at the planning stage, the researcher carried out several activities including a) Selecting the Project Based Learning model, which is expected to be effective in the use of teaching materials based on the learning model, b) Preparing instructional materials based on Project Based Learning, c) Making instruments product feasibility. At this stage, the preparation of assessment instruments is given to material experts/content experts, and linguists. Step (3) design the product that was developed, the results of the development of this research are the teaching materials for the 2013 curriculum theme always to save energy based on Project Based Learning which is supplemented by the addition of material supplements, pictures, and student activity sheets involving the project. Then step (4) is the step of product validation step done to the experts.

The development of the 2013 curriculum teaching material with the theme of always saving energy in grade IV elementary school is done by integrating the Project Based Learning learning model. Validation of teaching materials as development products will be carried out by material experts and language experts. Furthermore, before the book is used, a book readability test on photosynthetic material is carried out.

3. Result and discussion

The results of the instructional needs analysis obtained from the analysis of the needs of educators and students include: the material developed is in the form of a book, the material is practical or not only memorized, learning activities involve practical activities and produce products, the cover of the book is adapted to the contents of the material are about energy sources, and the size of the ledger such as the curse book from the government.

The recapitulation of the results of the validator assessment obtained from material experts and linguists on the products developed in the form of theme teaching materials always saves energy based on Project Based Learning can be seen in the table below:

Table 1. Recapitulation of Validator Assessment Results

Aspect	Score
Feasibility of displaying the book thoroughly	85,94%
Fill in the book	85,71%
Feasibility of PjBL-based learning activities	81,25%
Additional menu	87,5%
Linguistic	75%
Presentation	85%
Rata-rata	83,39%

Based on the data in Table 1 it can be concluded that the recapitulation of the validator's assessment of the theme teaching material always saves energy based on Project Based Learning obtaining an average score of 83.39% with the results showing in a very valid category. In linguistic aspects there are suggestions and input that researchers should pay more attention to the use of diction (word choice), pay more attention to the writing of question sentences with the use of question words and punctuation marks, pay more attention to the writing of command sentences with the use of command words and punctuation, and pay attention to the use of punctuation in each sentence in the teaching material.

Readability tests on theme teaching materials always save energy based on Project Based Learning carried out on 20 students in MajalengkaKulon II Elementary School as a sample. The text used in the legibility test is photosynthesis material in which there are 15 words omitted and the missing word must be filled by each student. The results of the analysis of the readability test of teaching materials that have been developed in this study get results with the average value of students are 88%. Based on the score, the categories of reading books are easy to understand.

Seeing from the recapitulation of validator validation results that obtained a score of 83.39% with very valid categories and legibility tests getting 88% with the book category easily understood, the products that have been developed in the form of theme teaching materials always save energy based on Project Based Learning can be continued and used when 4th grade elementary school learning.

4. Conclusion

Based on the results of the study and discussion, it can be concluded that product development in the form of 2013 curriculum teaching materials always saves energy based on Project Based Learning for fourth grade elementary school students, developed based on the analysis of the needs of educators and students obtained from three different schools as data sources. From the results of the needs analysis, then the principles of development of teaching materials are formulated always to save energy based on Project Based Learning which in general teaching materials contain material that is practical and learning activities involving practical activities that produce products.

The products that have been developed have been validated by material experts and linguists and readability tests have been conducted on 20 Majalengka Kulon II Elementary School students. The results of the overall validation of the two experts obtained a percentage of 83.39% with a very valid category and the readability test obtained 88.00 results with an easily understood category. Based on these criteria, the theme teaching material always saves energy based on Project Based Learning is appropriate to be used as a companion book in learning in the fourth grade of elementary school.

Reference

- [1] M. Hosnan, *The Scientific and Contextual Approach In 21st Century Learning (The key to successful implementation of the 2013 curriculum)*. Bogor: Ghalia Indonesia, 2014.
- [2] Y. Abidin, *Desain Sistem Pembelajaran Dalam Konteks Kurikulum 2013*. Bandung: Refika Aditama, 2014.
- [3] Yufiarti, S. Nuraini, M. Solihin, and R. Rachmadtullah, "Moral Disengagement in Middle School Students : Survey in Religious Education," *Int. J. Eng. Technol.*, vol. 7, no. 3.30, pp. 80–81, 2018.
- [4] M. S. Sumantri and R. Rachmadtullah, "The effect of learning media and self regulation to elementary students' history learning outcome," *Adv. Sci. Lett.*, vol. 22, no. 12, pp. 4104–4108, 2016.
- [5] M. S. Sumantri, A. W. Prayuningtyas, R. Rachmadtullah, and I. Magdalena, "The Roles of Teacher-Training Programs and Student Teachers' Self-Regulation in Developing Competence in Teaching Science," *Adv. Sci. Lett.*, vol. 24, no. 10, pp. 7077–7081, Oct. 2018.
- [6] R. Rachmadtullah, "Kemampuan Berpikir Kritis dan Konsep Diri dengan Hasil Belajar Pendidikan Kewarganegaraan Siswa Kelas V Sekolah Dasar," *J. Pendidik. Dasar*, vol. 6, no. 2, p. 287, Dec. 2015.
- [7] R. Rachmadtullah and A. W. Prayuningtyas, "Peningkatan Hasil Belajar Pendidikan Kewarganegaraan Melalui Metode Pembelajaran Contextstual and Learning," *J. Pendidik. Dasar*, vol. 7, no. 1, pp. 116–127, 2016.
- [8] R. A. Sani, *Pembelajaran Sainifik untuk Implementasi Kurikulum 2013*. Jakarta: Bumi Aksara, 2014.
- [9] M. Zulela, Y. E. Y. Siregar, R. Rachmadtullah, and P. A. Warhdani, "Keterampilan Menulis Narasi Melalui Pendekatan Konstruktivisme di Sekolah Dasar," *J. Pendidik. Dasar*, vol. 8, no. 2, pp. 112–123, 2017.
- [10] M. S. Zulela, R. Rachmadtullah, and Y. E. Y. Siregar, "Strategi Guru Meningkatkan

- Pemahaman Bacaan Melalui Pendekatan Savi Pada Siswa Kelas V Sekolah Dasar,” *J. Pendidik. Dasar*, vol. 8, no. 1, 2017.
- [11] J. J. Jennifer Evers, Chiodo, “Social Studies IS Being Taught in the Elementary School: A Contrarian View,” *Int. J. Humanit. Soc. Sci.*, vol. 2, no. 13, 2013.
- [12] Prastowo, *Panduan Kreatif Membuat Bahan Ajar Inovatif*. Yogyakarta: DIVA Press, 2014.
- [13] G. Y.-M. Kao, C. Tsai, C.-Y. Liu, and C.-H. Yang, “The effects of high/low interactive electronic storybooks on elementary school students’ reading motivation, story comprehension and chromatics concepts,” *Comput. Educ.*, vol. 100, pp. 56–70, Sep. 2016.
- [14] M. D. Gall, J. P. Gall, and W. R. Borg, *Educational Research: An Introduction (8th Edition)*. New York: Longman, 2007.
- [15] R. Rachmadtullah, Z. Ms, and M. S. Sumantri, “Development of computer - based interactive multimedia : study on learning in elementary education,” *Int. J. Eng. Technol.*, vol. 7, no. 4, pp. 2035–2038, 2018.