



Development of Teaching Materials Based on Blended Learning for Elementary School Students

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Abstract. In the world of education, learning has evolved along with the development of technology. Students will get bored if they study only in face-to-face classes or remote classes (online). Additionally, we need more engaging, innovative, and easily accessible digital materials to support learning. Materials used within the framework of the blended learning model create a new atmosphere among students, stimulate enthusiasm for learning, especially self-directed learning, and influence learning outcomes according to the basic skills and learning goals to be pursued. Make a big impact. Achieved. This research is development research using the following four-dimensional (Four-D) developmental model, such as define, design, develop, and disseminate. The assessment of the feasibility of teaching materials is conducted out by material experts and learning experts. The teaching material trial subjects were Grade 4 elementary school students. The data collection technique used the non-test instrument, which was carried out after the product was used. The response questionnaire consists of 2 indicators, such as effectiveness and practicality. The results of student responses to teaching materials were positive, with a percentage of 93.6%.

Keywords: Teaching Materials, Blended Learning, Mathematics

1 Introduction

The basic development of digital-based education is starting to develop in Indonesia. Learning systems in this modern era are considered to be more effective in providing learning to students. Some of the websites are digital education (edutech) providers. They try to accommodate the development of technology with educational needs. You do this by presenting something that can make it easier for students to get quality educational material that is in accordance with the character of student learning. As educators, teachers play a very important role in realizing the impact of classroom learning. One indicator of this is that teachers should be able to use information and communication technology to increase the efficiency and effectiveness of learning. Educational technology has a function in the learning process to overcome various difficulties and facilitate the learning process according to the characteristics and conditions in which the technology is applied. The process of using technology for learning is known as electronic learning or e-learning. However, every student's learning style is different,

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so e-learning is not completely successful. In addition to different learning styles, communication between teachers and students is also very necessary, because by communicating both teachers and students can find out to what extent results are achieved in the learning process. Thus, the learning model that can be applied in the Industrial Revolution 4.0 era is combining conventional learning (face-to-face) with e-learning, which is called blended learning.

According to MacDonald [1], the term blended learning usually revolves around including online media in learning programs, while at the same time paying attention to the need to maintain open meetings and other traditional approaches to supporting students. Blended learning is guided by the words blended which mean combination or mix, and the words learning which mean study [2]. Thorne [3] describes blended learning as an opportunity to combine the innovative and technological advances of online learning with interaction and participation that offer the best of traditional learning. Blended learning allows you to learn anytime, anywhere through the Internet. The definition of blended learning according to Driscoll is a learning that creates a synergy with various Web-based technologies to achieve learning objectives [4].

The learning process is not only through teachers and reading books at school, but also by exploring learning resources on the internet or with other companion teaching materials, especially digital teaching materials [5]. Students have free access to the materials, and the materials are stored online, so they should be able to learn independently. Real-time feedback in the form of questions and suggestions can be given between teachers and students. Blended learning models can encourage the creation of an active, learner-centered learning atmosphere, as well as good interaction in the learning process [6].

Some of the definitions put forward above lead to the same meaning, namely blended learning is a learning model that combines or combines traditional face-to-face learning in direct class and distance learning using computer and network technology [7]. The implementation of blended learning does require adequate facilities in the form of an internet network [8]. But, some students and teachers still do not know and understand its use as a learning medium [9]. This is to enable discussion and question-and-answer sessions between teachers and students not only during class but also outside of class. Teachers can also manage student learning, allowing students to familiarize themselves with what they teach and more easily know the process of assigning supplementary tasks.

Thus, it is necessary to develop teaching materials based on blended learning that can facilitate students in education 4.0 and to improve students' critical thinking skills. Teaching materials are a set of learning materials that are arranged systematically by displaying the full range of competencies that will be mastered by students [10]. Teaching materials are something that is designed and presented by the teacher to be processed and understood by students in order to achieve the learning objectives that have been set [11]. The functions of teaching materials are: first, as a guide for teachers who will provide and facilitate learning, as well as a substance of competence that should be taught to students. Second, guidelines for students who will focus all their activities on the learning process, as well as competencies that should be learned/mastered. Third, the evaluation tool for achievement/mastery of learning outcomes [12]. Students will

understand and understand more if the teacher in learning uses concrete objects that resemble the actual atmosphere [13]. The purpose of this research is to develop teaching materials based on blended learning.

2 Method

This is research and development. There are different types of models for R&D methods. The model used in this study is his 4D model development. The Four-Dimensional Development Model (Four-D) is the development of learning devices. The 4D development models is a development that consists of 4 main stages, such as Define, Design, Develop and Disseminate. This 4D development was developed by S. Thiagarajan, Dorothy S. Semmel, and Melvyn I. Semmel (1974). The researchers chose this model with the aim of producing products in the form of blended learning materials. Next, we test the feasibility and validity of the developed product and check the extent to which it affects the learning outcomes of students who have studied with the mixed material in a product trial.

3 Results and Discussion

3.1 Results

The purpose of this development research is to commercialize teaching materials based on blended learning. The teaching material based on blended learning has been deemed appropriate by expert validators and tested to determine the feasibility of the product based on the opinions of the students who use it. The development of teaching materials based on blended learning is implemented in accordance with the stages in 4D development, such as define, design, develop, and disseminate.

At this define stage, the concept analysis stage of the product to be developed is in the form of teaching materials based on blended learning. The concept developed supports a literacy culture based on 4C that is communication, collaboration, critical thinking, creativity, and innovation supported by a combination of online learning and offline learning models. The material and content provided in the teaching materials are adjusted to the level and learning objectives that direct students to play an active role, independent and fun-learning.

The format chosen for the product to be developed is a learning module with the concept of blended learning, such as a combination of online learning and conventional or face-to-face learning in class. An example of a mathematical module is as shown in Fig. 1.

Meanwhile, e-LKPD product formats developed in online or web formats are developed and edited through the Live Worksheets application. An example of a E-LKPD display using the Live Worksheets application as shown in Fig. 2.

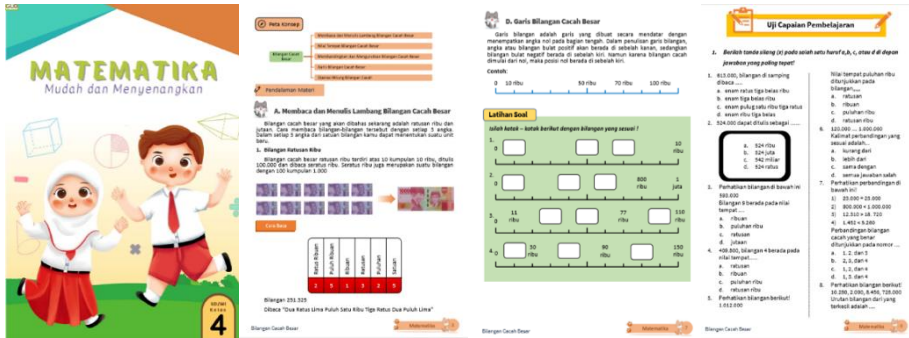


Fig. 1. Mathematics Subject Module

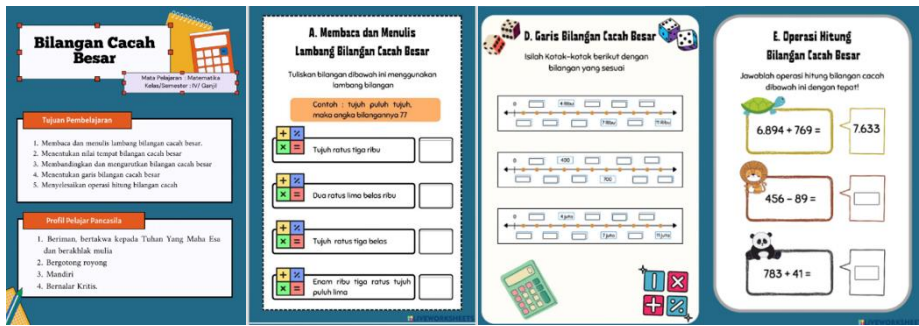


Fig. 2. An example of an E-LKPD display using the Live worksheets application

The purpose of this stage of development is to define and detail the product concept to be developed, based on expert opinion and trial by students, and then to produce a modified intended product. The results of the students' responses to the limited trials of teaching materials can be seen in Table 1.

Table 1. Analysis of Student Responses to Teaching Materials Based on Blended Learning

	Criteria	Intervals	Response Category
	Practicality	94.25	Positive
	Effectiveness	93.00	Positive
	The Average Student Response to Teaching Materials	93.60	Positive

3.2 Discussion

The response is a response, reaction, or action. Someone is said to give a positive response to something because, for them, something is interesting. Otherwise, someone will give a negative response if something is not interesting to them. This also applies to the learning process. So that with the response can find out a person's response to an object. The response was carried out by showing teaching materials to students, and students were given a questionnaire to find out their responses to the teaching materials.

Previously, the questionnaire had been validated and revised before being distributed to students so that it was truly valid.

After the expert validation stages and product trials to students and revisions are held after validation and trials, the product is obtained which is ready to be distributed or applied. The aim of this stage is to disseminate the product that has been developed, which is in the form of teaching materials based on blended learning in mathematics at the elementary school level. The distribution was carried out on a limited basis for class IV SDN Cemara Jaya 1 Cibuaya.

Blended learning has the potential to enhance learning, but it also presents challenges, especially in dealing with the complexity of the two learning environments. The two learning environments are online learning environments that are integrated with existing traditional learning. Therefore, we need to identify some factors that determine the success of mixed learning. The success in question is that the practice of blended learning can provide quality learning outcomes, students who have a good learning experience, and teacher satisfaction in learning. The introduction of blended learning improves the quality of internet-based learning, creates mature learning scenarios, encourages students to participate actively and constructively in the learning process, and enhances the interaction between students and the environment and between students. can be done to improve interaction. Other teachers, students and students, students with teaching materials, students with daily life.

4 Conclusion

Based on research results, it can be said that in a limited number of tests, students' reaction to the material was rated as positive with an average score of 93.6%. Blended learning can achieve high quality learning outcomes, excellent student learning experiences, and teacher satisfaction with learning.

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References

1. A. K. Amin, "Kajian Konseptual Model Pembelajaran Blended Learning berbasis Web untuk Meningkatkan Hasil Belajar dan Motivasi Belajar," *J. Pendidik. Edutama*, vol. 4, no. 2, pp. 51–64, 2017.
2. A. Anggian, S. Edi, and H. Arif, "Pengaruh Blended Learning Terhadap Kemampuan Berpikir Kritis Siswa SMA Pada Materi Suhu dan Kalor," *J. Pendidik. Teor. Penelit.*, vol. 4, no. 6, 2019.
3. H. Idris, "Pembelajaran Model Blended Learning," *J. Ilm. Iqra'*, vol. 5, no. 1, pp. 61–73, 2018, doi: 10.30984/jii.v5i1.562.
4. G. S. Suci, I. Indrawan, H. Wijoyo, and F. Kurniawan, *Transformasi Digital Pertambangan*. 2020.

5. D. Lalima and K. Lata Dangwal, "Blended Learning: An Innovative Approach," *Univers. J. Educ. Res.*, vol. 5, no. 1, pp. 129–136, 2017, doi: 10.13189/ujer.2017.050116.
6. H. S. Wiryanto, "Pengaruh Model Blended Learning Berbasis Moodle Terhadap Kemampuan Self-Regulated," 2018.
7. S. Bibi, "Efektivitas Penerapan Blended Learning Mata Kuliah Algoritma Dan Pemrograman," *J. Pendidik. Inform. dan Sains*, vol. 4, no. 2, pp. 274–286, 2015.
8. R. M. Napitupulu, "Dampak pandemi Covid-19 terhadap kepuasan pembelajaran jarak jauh," *J. Inov. Teknol. Pendidik.*, vol. 7, no. 1, pp. 23–33, 2020, doi: 10.21831/jitp.v7i1.32771.
9. M. P. Zalsabella *et al.*, "Dampak Pembelajaran Jarak Jauh Terhadap Perasaan Tertekan Pada Siswa Kelas Tujuh Smp Saat Memahami Konsep Matematika," *J. Rev. Pendidik. dan Pengajaran*, vol. 3, no. 2, pp. 294–298, 2020, doi: 10.31004/jrpp.v3i2.1305.
10. H. Hamid, *Pengembangan Sistem Pendidikan Di Indonesia*. Bandung: Pustaka Setia, 2013.
11. J. Nirahua, J. Taihuttu, and V. Sopacua, "Pengembangan Bahan Ajar Berbasis Blended Learning Dan Critical Thinking Skill Pada Mata Kuliah Astrofisika Dalam Menyongsong Era Revolusi Industri 4.0," *Jambura Phys. J.*, vol. 2, no. 1, pp. 24–36, 2020, doi: 10.34312/jpj.v2i1.6869.
12. M. A. Legendari and H. Raharjo, "Pengembangan Bahan Ajar Berbasis Audio Visual Terhadap Hasil Belajar Siswa Pada Materi Pokok Bangun Ruang Kubus Dan Balok Kelas Viii Di Smp N 1 Ciledug," *Eduma Math. Educ. Learn. Teach.*, vol. 5, no. 1, 2016, doi: 10.24235/eduma.v5i1.683.
13. N. Hidayati and L. Roesdiana, "PEMANFAATAN MODEL PEMBELAJARAN PROJEK BERBANTUAN ANIMASI PADA SISWA SD," *J-ABDIPAMAS (Jurnal Pengabd. Kpd. Masyarakat)*, vol. 5, no. 2, pp. 155–160, 2021.

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