



The Development of Problem-Based Learning Model E-Module Integrated with Multiculturalism in Elementary Schools

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Received: 12 June 2023; Revised: 16 Desember 2023; Accepted: 5 March 2024

Abstract: The absence of technological teaching materials tailored to each local area's specific conditions served as the impetus for this research. The objective of this research is to generate e-modules that are both practical and valid as educational resources. This study employs the five stages of ADDIE development research: analysis, design, development, implementation, and evaluation. The research results indicate that the e-module developed by the researchers achieved a score of 89% for material expert validators, 86% for media expert validators, and 84% for language expert validators, all of which are classified as "very valid" 91.5% and 92% of the practical results for teachers and pupils regarding the companion e-module were achieved with very practical criteria. The companion e-module with the Problem-Based Learning (PBL) multicultural-based model that has been developed fulfils the valid criteria and is practical to use as teaching material, as can be inferred from these results. Based on these findings, this instructional material can serve as an innovative tool to assist educators in the classroom learning process.

Keywords: e-module, PBL model, multicultural

How to Cite: Desyandri, Agustina, Y., & Lusiana, D. (2024). The development of problem-based learning model e-module integrated with multiculturalism in elementary schools. *Jurnal Prima Edukasia*, 12(2), 183-193. <https://doi.org/10.21831/jpe.v12i2.62368>



Introduction

The world has now entered the 21st century, or what is often known as the era of Industrial Revolution 4.0. Entering this era, of course, there are various challenges, including preparing quality human resources that can be competitive in this global era (Ningrum & Sobri, 2015). The characteristics of the development of the Industrial Revolution 4.0 era are the involvement of technology in every cycle of human life, including in education. The educational era influenced by the Industrial Revolution 4.0 is called Education 4.0, characterized by computerized innovation in every educational cycle, also known as the digital framework. Wahyugi & Fatmariza (2021) stated that in the era of Industrial Revolution 4.0, the use of technology is very important. This era demands technology use, utilization, and development in every aspect of life, including learning. The presence of technology can make learning active, creative, innovative, and fun so that various correlational relationships can be established between teachers, students, media, and learning resources (Setiyani et al., 2019). The use of this technology as a tool in learning will be very useful in improving students' learning achievements (Danim, 2008). This is in line with Lestari (2018), who states that the use of technology can increase knowledge and skills and can increase the achievement of students themselves.

One of the efforts made by the Indonesian government to improve the quality of national education is by implementing an independent curriculum. The independent curriculum, previously known as the prototype curriculum, was developed as a curriculum framework that is more flexible and focuses on essential material as well as developing the character and competence of students, which has the following characteristics: Problem-Based Learning (PBL) for the development of soft skills and

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character according to the Pancasila student profile, focus learning on essential material will make learning more in-depth for basic competencies such as literacy and numeracy, and teachers have the flexibility to carry out differentiated learning according to students' abilities and make adjustments to local context and content (Jusuf & Sobari, 2022). The independent curriculum aims to strengthen students' literacy and numeracy skills as well as their knowledge in each subject, and the phase or level of development itself means the learning outcomes that students, adjusted to the characteristics must achieve, potential and needs of students (Rahmadayanti & Hartoyo, 2022). Then, for implementation, the independent curriculum provides freedom and is centered on students, teachers, and schools being free to determine appropriate learning.

Furthermore, in the learning process, teachers usually use textbooks. Apart from that, another thing that teachers need to prepare when carrying out learning is teaching materials. This needs to be done because the scope of material in the package book is not extensive. This is in line with Nasrul's (2018) statement that teachers cannot rely only on books provided by the school to provide material to students. The use of teaching materials during learning is very important because the use of teaching materials during learning can improve students' ability to learn. Therefore, teachers must be more capable of developing teaching materials to make it easier for students to learn.

Based on observations that researchers conducted at Luhak Nan Duo 14 Elementary School and Luhak Nan Duo 15 Elementary School in West Pasaman Regency on 12-13 October 2020, researchers found several problems related to learning. The results that researchers got from interviews with class IV teachers at Luhak Nan Duo 14 Elementary School and Luhak Nan Duo 15 Elementary School, namely that the teaching materials used were still limited to textbooks. as well as other LKS companion books. The current teaching materials are general materials not contextual to the students' environmental conditions. The material contained in the teaching materials does not yet reflect elements of the local environment and culture. This makes it difficult to teach material that students should know and master. The class teacher also stated that this condition causes students to be less familiar with the environment of the area where they live because the teaching materials currently used do not yet describe their area. The teaching materials that students have studied study the conditions of other regions, such as Yogyakarta and Bali, which are far from the environmental context of students' existence, even though West Pasaman also has a distinctive culture.

West Pasaman Regency, with its unique, heterogeneous region, is influenced by three ethnicities: Minangkabau, Mandahiliang, and Javanese. Minangkabau has the arts of *ratak kudo*, *badantang*, *silat*, *bakaba gilo lukaha*. Mandahiliang has *gordang sembilan* arts, *onang-onang*, and others. Java has *kuda kepang*, *reog* and so on. Culinary tourism as a characteristic of each ethnicity that can be studied is interesting as it increases students' insight and knowledge regarding their region. Apart from this, local tourist attractions and community economic activities with values related to local society and culture are also unique to the area, so they can be studied and introduced to students. It is a challenge for teachers to be able to maintain and instill values in students in the local area so that future generations can preserve them from each ethnic group.

Furthermore, based on the results of the interviews, it can be seen that students still feel that they do not know the material because the book is written globally by educational experts, so that it does not clearly depict the typical characteristics of the area where the students live. The teacher also only briefly explains the characteristics of the area where the students live, so a companion module is needed to help students understand this material. Another student statement was regarding students' difficulties when using learning books. Because the material in the student books was still very limited, students had difficulty working on the practice questions in the textbook. Another obstacle is faced when students are asked to look for additional learning resources via the Internet. This is quite a difficult problem for students because not all students have the facilities to search for the information they need. This condition makes it difficult for students to understand the material they should master.

Based on these problems, it can be indicated that there was a lack of use of varied teaching materials that were appropriate to the local multicultural area in the learning process. Multicultural is a term used in relation to the cultural diversity of a country, starting from the diversity of its social groups, cultures, and ethnicities. In education, there is a term related to instilling diversity in society, often known as multicultural education. According to Wibowo et al. (2021) multicultural education is a relatively new phenomenon in education. Still, multicultural education must be implemented early in formal and non-formal education. Implementing multicultural education is considered one of the right

ways to instill the ability of people to live in diversity and mutual tolerance between people. According to Priyatni & Wahono (2012), multicultural education is an educational process that provides equal respect to all students without distinguishing between ethnic background, race, religion, culture, language, religious sect, and even socio-economic strata of society. Based on research conducted by Khoeriyah & Mawardi (2018) which stated that by incorporating the traditional values that exist in a community into learning can promote more meaningful learning. This can be interpreted that by having teachers teach learning in the classroom by incorporating the traditional values that exist in a society into learning, it can improve student learning outcomes for the better.

Based on the information above, to overcome this problem, researchers can provide a solution by developing multicultural-based teaching material in the local area. Using teaching materials in learning is very important because it can improve students' learning ability (Agustina & Desyandri, 2022). Therefore, teachers must be more capable of developing teaching materials to make it easier for students to learn. Teaching materials are all materials arranged systematically and can be applied and utilized by teachers or instructors during the learning process to create an environment or atmosphere that can enable students to learn (Hamdani, 2011). Basically, teaching materials are needed by both teachers and students. Teaching materials must be designed and arranged in such a way that they can be used by teachers and students (Nasrul, 2018). One of the teaching materials that teachers can develop in accordance with developments in the 21st century and utilizing technology is E-modules or electronic modules.

E-modules can be interpreted as teaching materials displayed using digital devices to deliver the material (Kunchahyono, 2019). The difference between e-modules and modules is that e-modules are modules that are adapted by utilizing technology, while modules are usually identified with printed teaching materials (Qomalasari et al., 2021). According to Sumarsono & Sianturi (2019), electronic modules are a form of teaching material that suits the characteristics of the teaching material, is arranged systematically, allows students to carry out learning independently, and can actively use speed and skills without teacher guidance, packaged in its entirety. E-Module is a module where text, images, graphics, animation, and video can be accessed anywhere and anytime through simulations that are capable and suitable for learning (Violadini & Mustika, 2021).

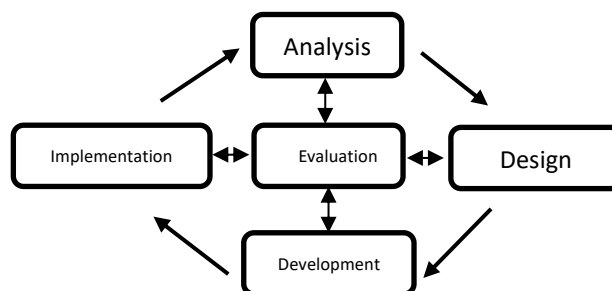
Furthermore, a learning model is used to increase students' learning motivation and learning outcomes (Muhlis, 2018). One learning model that researchers can use in independent curriculum learning is PBL (Febrita & Harni, 2020). This is a learning model with a student learning approach to authentic problems so that students can construct their own knowledge, develop higher skills and inquiry, make students independent and increase their self-confidence (Novianti et al., 2020). The PBL approach is an alternative solution to problems that occur in the classroom because it encourages students to find an answer systematically (Dewi & Wardani, 2019). Hosnan (in Trianto, 2011) states that the application of the PBL method consists of five main steps in the learning process, namely: 1) orienting students to the problem, 2) organizing students to learn, 3) guiding individual and group investigations, 4) developing and presenting work results, and 5) analyze and evaluate the problem-solving process. this model is suitable for use in learning. Using the PBL model in the learning process can also improve learning outcomes (Febrita & Harni, 2020). This is proven by several studies that have been conducted previously, including the title "The Effect of Implementing the PBL Model on Student Activities and Learning Outcomes in Integrated Thematic Learning in Class V of Elementary Schools." The results of this research state that the use of the PBL model in learning can improve student learning outcomes in class V elementary school.

Methods

This research was Research and Development (R&D) type research. The development model used was the ADDIE development model, which consists of five stages including analysis, design, development, implementation, and evaluation. At the analysis stage, the researcher carried out an analysis of the curriculum and the needs of teachers and students. At the design stage, researchers carried out the design stage of the product that will be developed as a solution to the problems found in the field. At the development stage, researchers tested the product's validity with expert validators. At the implementation stage, the researcher implemented the product being developed in the field. At the

evaluation stage, researchers conduct formative and summative evaluations of the products being developed. The reason researchers use the ADDIE development model is that this model is complete, and each stage is equipped with an evaluation. Then, this development model is also grouped into procedural development models, which can be used as a way to overcome problems related to learning resources, characteristics and needs of students (Desyandri & Vernanda, 2017).

Figure 1. Stages of the ADDIE Design Development Model



Furthermore, the product trials resulting from development in the form of e-modules with a multicultural based PBL model in this research were small group trials and large group trials. The subjects for this research trial are two teachers and 42 students. The data collection instrument in this research is to collect data to determine product suitability. The instruments used are as follows: (1) questionnaire consisting of (a) teacher needs analysis questionnaire, (b) student needs analysis questionnaire, (c) observation questionnaire, (d) interview questionnaire, (e) media validator questionnaire, material and language, (f) teacher practicality questionnaire, (g) student practicality questionnaire, and (h) open product evaluation questionnaire, (2) pre-test and post-test of students, and (3) documentation. The data analysis techniques in this research are validity analysis and practicality analysis. Validity results were obtained from the validation questionnaire. Practicality results were obtained from the practicality questionnaire of students and teachers after using the companion module. Obtained by analyzing data from teacher and student response questionnaires. In this study, a measurement scale of 5 (five) was used. Practicality test data from the products developed was analyzed using percentages (%).

Table 1. Guidelines for Categorizing Product Practicality

Percentage (%)	Category	Information
81-100	Very Practical	Practically no need for revision
61-80	Practical	Practically needs minor revision
41-60	Quite Practical	Practically usable with moderate revision
21-40	Impractical	Needs major revision
1-20	Very Impractical	Can not be used

Results and Discussion

This research develops teaching materials in the form of e-modules. This accompanying e-module uses the PBL model. Using the PBL model will free each student to express their ideas with other friends, increase students' self-confidence, and link students' real-life experiences with the material so that students can build their own knowledge. This research was carried out in the independent music arts learning curriculum for class IV in learning achievements. At the end of Phase B, students can make impressions and document the music they experience in oral, written, drawing, and other forms. Students undertake good and routine musical practice habits (creative discipline) by practicing simple music for fluency and flexibility in carrying out and developing musical abilities for themselves and together and getting a good impression from their experience. Meanwhile, the material is related to multicultural-based musical arts appropriate to the student's area.

The researcher chose to develop accompanying e-module-type teaching materials because they were meant to complement the material in the textbook that students in multicultural-based classes had

used. The design of this companion e-module went through several stages in line with the development model used in this research, namely the ADDIE development model, so that a valid and practical companion module was obtained for fourth-grade elementary school students. This research was carried out in class IV, which is fine arts learning. Results of the development of a companion e-module was carried out in five stages, namely the analysis, design, development, implementation, and evaluation stages.

1. Analysis Stage

At this stage, researchers carry out teacher needs analysis, student needs analysis, and curriculum analysis, as well as analyze the advantages and disadvantages of teaching materials not used in the school as the research site (Oktavia & Desyandri, 2020). At this stage, the researcher carried out the analysis. Analysis obtained from the results of a preliminary study. The instruments that researchers used consisted of interview sheets, observation sheets, and teacher and student needs analysis questionnaires. This analysis stage aims to discover the problems experienced by Luhak Nan Duo 14 Elementary School and Luhak Nan Duo 15 Elementary School in West Pasaman Regency, which will be researched and solutions to solve the problems.

The results obtained from the preliminary study were that the teaching materials used in the field were still teacher books, student books, and worksheets from publishers, and there had been no addition of other teaching materials. The material taught is not contextual to the students' environmental conditions. The material contained in the teaching materials does not yet reflect elements of the local environment and culture. This makes it difficult to teach material that students should know and master. The class teacher also stated that this condition causes students to be less familiar with the environment of the area where they live because the teaching materials currently used do not yet describe their area. The teaching materials that students have studied study the conditions of other regions, such as Yogyakarta and Bali which are far from the environmental context of the students' existence, even though West Pasaman also has a distinctive culture.

Then, it was found that the students felt they did not understand the material. Students stated that the material studied in student books and worksheets from publishers was still not extensive enough, making it difficult for them to work on the practice questions contained in student books. Students use the Internet to find materials and other necessary resources, but this is also an obstacle for most students. This is because not all students have the facilities to search for the information they need. This condition makes it difficult for students to understand the material they should master.

To overcome the problems above, researchers can provide a solution by developing teaching materials as accompanying modules with a multicultural-based PBL model. The module developed is in the form of an e-module or electronic module to suit the demands of current developments in the use of electronics. This module will be applied directly to art learning in fourth-grade elementary school. Then, researchers analyzed what materials needed to be developed. At this stage, the researcher mapped syllabus and analyzed core competencies, competency standards, basic competencies, and indicators of competency achievement used in the teaching materials as products the researchers developed. The material used in this research was about multicultural music.

2. Design Stage

At this stage, the researcher designs the product to be developed. This design starts from designing the learning that will be used then continues with designing the e-module using the *Canva*. The following are several pictures of the product design display of teaching materials in the form of companion e-modules with a multicultural-based PBL model in class IV elementary school, namely.

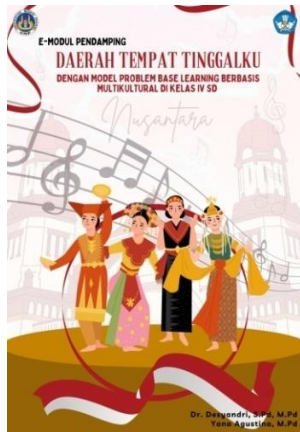


Figure 2. Cover View



Figure 3. Display of the Contents of the Lesson terial



Figure 4. Display of the Contents of the Lesson Material

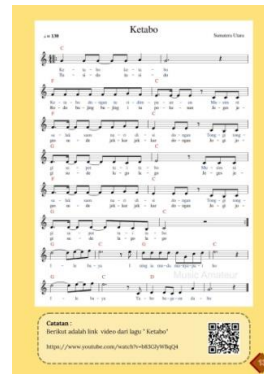


Figure 5. Display of the Contents of the Lesson Material



Figure 6. Display of the Contents of the Lesson Material



Figure 7. Display of the Contents of the Lesson Material



Figure 8. Display the Contents of Lesson Materials and Exercises



Figure 9. Exercise View

3. Development Stage

At this stage, the researcher conducted a feasibility test by validating the developed product with media, material and language expert validators (Arisanti & Adnan, 2021). The instrument that researchers used was in the form of a questionnaire. The validators will be given a questionnaire according to their respective expert fields. The steps that researchers took at this stage were validation and revision. The following are the results of the validation that has been carried out:

a. Material Expert Validation

Material expert validity test data was obtained from three experts. Two lecturers are experts in PGSD material from Doctor of Education and postgraduate lecturers from Padang State University. Then, one teacher at an elementary school has a Master's in Education. Here, the validator only examines the material aspects of the e-module teaching material product the researcher created. The following are the results of the companion e-module assessment with a multicultural-based PBL model in class IV elementary school based on material aspects, which can be seen in the Table 2.

Table 2. Validity Test Results on Material Aspects

Material Expert Validator	%	Category
I	96	Very valid
II	86	Very valid
III	86	Very valid
Amount	268	
Average percentage	89	Very valid

Based on these data, it is known that the average validity of the material obtained is 89% with a very valid category, so it can be concluded that the teaching material in the form of accompanying e-modules with a multicultural-based PBL model in class IV elementary school which was developed is declared valid and suitable for use.

b. Media Expert Validation

Data for assessing the validity of media/graphics aspects was obtained from one lecturer who is an expert in the field of learning media from the Faculty of Education, Padang State University. The assessment results of the companion e-module that was developed based on the media aspect were obtained at 86% with a very valid category, so it can be concluded that the companion e-module with the multicultural-based PBL model in class IV elementary school that was developed was declared valid and feasible to be tested.

c. Linguist Validation

The linguist validity test data was obtained from one linguist lecturer who is a Doctor of Education from Padang State University. The assessment results of this e-module based on the language aspect were obtained at 84% with a very valid category, so it can be concluded that the teaching material in the form of a companion e-module with a multicultural-based PBL

(PBL) model in class IV elementary school that was developed was declared valid and suitable for use.

The following table summarizes the validation of material, language, and media from the accompanying E-module with a multicultural-based PBL (PBL) model in class IV elementary school which can be seen in the following table:

Table 3. Recapitulation of Material, Media, and Language Validation

No.	Assessment Aspects	Evaluation %	Category
1	Material	89	Very Valid
2	Media	86	Very Valid
3	Language	84	Very Valid
	Amount	259	
	Average	86.33%	Very Valid

4. Implementation Stage

At this stage, the researcher carries out implementation in the field. Trials were carried out in small/limited groups and large/wide groups. The researchers conducted small group trials at one elementary school, Luhak Nan Duo 14 Elementary School. The researchers also carried out large group trials at one elementary school, namely Luhak Nan Duo 15 Elementary School in West Pasaman Regency. After carrying out the trial, the researcher then carried out a practicality test. Teachers and students carry out practical tests. The following practicality test assessments that have been carried out during the trial can be seen in the following tables:

Table 4. Teacher Practicality Test Results

Class III Teacher Users	%	Category
Luhak Nan Duo 14 Elementary School	89	Very Practical
Luhak Nan Duo 15 Elementary School	94	Very Practical
Amount	183	
Average	91.5	Very Practical

Table 5. Student Practicality Test Results

Users (Students)	%	Category
Class IV of Luhak Nan Duo 14 Elementary School	93	Very Practical
Class IV of Luhak Nan Duo 15 Elementary School	91	Very Practical
Amount	184	
Average	92	Very Practical

Based on the data above, the results of the teacher practicality assessment obtained an average of 91.5% in the very practical category. Then, the students' practicality assessment results obtained an average of 92% in the very practical category. Therefore, it can be concluded that the companion e-module with the multicultural-based PBL model developed in class IV elementary school is very practical and can be used for class IV elementary school students.

5. Evaluation Stage

This stage is related to the assessment results of the product being developed (Arisanti & Adnan, 2021). Two necessary evaluations must be carried out at this stage. First, formative evaluation is carried out while the program is in progress, and data collection at each stage has been passed (Desyandri & Vernanda, 2017). This is related to whether improvements are made to the product being developed or not (Arisanti & Adnan, 2021). Second, a summative evaluation is carried out at the end of the program to know its effect on student learning outcomes and the quality of learning at large (Desyandri & Vernanda, 2017). This second evaluation can be carried out by giving a test, but this has also been done at the previous stage. Therefore, both the first and second evaluations have been carried out by researchers at the previous stage. This evaluation stage was

carried out as the final revision stage of the product that the researcher developed, which was based on input, suggestions, and criticism from the instrument in the form of questionnaires received from validator experts, teachers, students, and the researcher's notes during the product implementation stage.

Based on the results of the research process stages above, it was found that the teaching materials that the researchers developed were valid and practical. The validity results obtained from the material expert validator were 89% in the very valid category, the media expert validator got a score of 86% in the very valid category and the language expert validator got a score of 84% in the very valid category. Meanwhile, the results of the teacher practicality assessment obtained an average of 91.5% in the very practical category and the results of the student practicality assessment obtained an average of 92% in the very practical category. Therefore, it can be concluded that the accompanying e-module is with the PBL model. Based on multiculturalism in class IV elementary school which was developed is stated to be very practical and can be used for class IV elementary school students. There are several studies that are relevant to this research, but what differentiates researchers is the product form, subject and research results (Antari et al., 2023, Nora et al., 2022). However, what is new about this product is that the teaching materials are in the form of e-modules and each learning step in this e-module follows the steps of the multicultural-based PBL model in fourth-grade elementary school. The application of this product uses technology to align with the demands of current developments, which emphasize the use of technology in the learning process. This will make learning more enjoyable for students because learning usually relies only on textbooks. The learning process will change from a teacher center to a student center. This will later have an impact on student learning outcomes, which will be even more improved than before.

Conclusion

Based on the findings obtained during the research, it can be concluded that the results of the product development that the researchers developed in the form of a companion e-module with a multicultural-based PBL model in class IV elementary school are very valid and very practical and can be used in learning in elementary schools. The validity results obtained from the material expert validator were 89% in the very valid category, the media expert validator got a score of 86% in the very valid category, and the language expert validator got a score of 84% in the very valid category. Meanwhile, the practicality of the teacher's response received a score of 91.5%, and the practicality of the student's response received a score of 92%, which was also categorized as very practical.

References

- Agustina, Y., & Desyandri, D. (2022). Development of interactive multimedia teaching materials macromedia flash 8 based on steam approach in integrated thematic learning in elementary schools. *Vox Edukasi: Jurnal Ilmiah Ilmu Pendidikan*, 13(2), 294–308. <http://jurnal.stkipersada.ac.id/jurnal/index.php/VOX/article/view/1826>
- Akbar, S. (2013). *Learning tool instrument*. PT Remaja Rosdakarya.
- Antari, P. L., Widiana, I. W., & Wibawa, I. M. C. (2023). Electronic module based on project based learning for science learning to improve elementary school students' learning outcomes. *Jurnal Ilmiah Pendidikan Dan Pembelajaran*, 7(2), 266–275. <https://doi.org/10.23887/jipp.v7i2.60236>
- Arisanti, Y., & Adnan, M. F. (2021). Development of interactive multimedia based on macromedia flash 8 software to improve motivation and learning outcomes of elementary school students. *Jurnal Basicedu*, 5(4), 2122–2132.
- Danim, S. (2008). *Educational communication media professional services learning and quality of learning outcomes*. Bumi Aksara.

- Desyandri, D., & Vernanda, D. (2017). Development of integrated thematic teaching materials in grade v elementary school using problem identification. *Prosiding Seminar Nasional HDPGSDI Wilayah IV*, 163–174. <https://doi.org/10.31227/osf.io/h86jp>
- Febrita, I., & Harni. (2020). Implementation of PBL approach in integrated thematic learning in grade IV SD. *Jurnal Pendidikan Tambusai*, 4(2), 1425–1436. <https://jptam.org/index.php/jptam/article/download/608/535>
- Hamdani. (2011). *Teaching and learning strategies*. Pustaka Setya.
- Jusuf, H., & Sobari, A. (2022). New paradigm learning independent curriculum in elementary schools. *Jurnal Pengabdian Kepada Masyarakat UBJ*, 5(2), 185–194. <https://doi.org/10.31599/jabdimas.v5i2.1360>
- Khoeriyah, N., & Mawardi, M. (2018). Implementation of alternative integrative thematic learning design based on local wisdom to improve learning outcomes and meaningfulness. *Mimbar Sekolah Dasar*, 5(2), 63–74. <https://doi.org/10.17509/mimbar-sd.v5i2.11444>
- Kuncahyono. (2019). Developing soft skills in learning technology through creating e-modules for elementary school teachers. *Terampil: Jurnal Pendidikan Dan Pembelajaran Dasar*, 6(2), 128–139. http://www.scopus.com/inward/record.url?eid=2-s2.0-84865607390&partnerID=tZOtx3y1%0Ahttp://books.google.com/books?hl=en&lr=&id=2LIMMD9FVXkC&oi=fnd&pg=PR5&dq=Principles+of+Digital+Image+Processing+fundamental+techniques&ots=HjrHeuS_
- Lestari, S. (2018). The role of technology in education in the era of globalization. *Edureligia; Jurnal Pendidikan Agama Islam*, 2(2), 94–100. <https://doi.org/10.33650/edureligia.v2i2.459>
- Muhlis. (2018). The influence of cooperative learning model on student motivation and learning outcomes in colloidal system material at Bantimurung Maros 4 High School. *Pembelajar: Jurnal Ilmu Pendidikan, Keguruan, dan Pembelajaran*, 2(1), 12–24. <https://doi.org/10.26858/pembelajar.v2i1.4135>
- Nasrul, S. (2018). Development of integrated thematic teaching materials based on PBL model in grade IV elementary school. *Jurnal Inovasi Pendidikan dan Pembelajaran Sekolah Dasar*, 2(1), 81–92.
- Ningrum, E. S., & Sobri, A. Y. (2015). Implementation of the 2013 curriculum in elementary schools. *Manajemen Pendidikan*, 24(5), 416–423. <https://bit.ly/3wcNukr>
- Nora, Y., Jusar, I. R., Rahmadani, A. F., & Safitri, T. A. (2022). Validity of the IPS lecturer inspire e-module based on discovery learning for grade IV elementary school. *Muallimuna: Jurnal Madrasah Ibtidaiyah*, 7(2), 31. <https://doi.org/10.31602/muallimuna.v7i2.5478>
- Novianti, A., Bentri, A., & Zikri, A. (2020). The influence of the implementation of the PBL model on student activities and learning outcomes in integrated thematic learning in grade v of elementary school. *Jurnal Basicedu*, 4(1), 194–202.
- Oktavia, N., & Desyandri, D. (2020). Validity and practicality of interactive multimedia development based on macromedia flash 8 in thematic learning in grade IV elementary schools in Padang City. *Jurnal Inovasi Pendidikan dan Pembelajaran Sekolah Dasar*, 4(2), 58–67. <http://ejournal.unp.ac.id/index.php/jippsd/article/view/112704>
- Priyatni, E. T., & Wahono, A. S. (2012). Model for preparing reading teaching materials based on multicultural education and e-learning. *Litera*, 11(1). <https://doi.org/10.21831/ltr.v11i1.1075>
- Qomalasari, E. N., Karlimah, & Respati, R. (2021). Analysis of needs for developing e-module on fractional number material in elementary schools. *Edukatif: Jurnal Ilmu Pendidikan*, 3(4), 1890–1900. <https://doi.org/10.31004/edukatif.v3i4.1027>

- Rahmadayanti, D., & Hartoyo, A. (2022). Portrait of the independent curriculum, the form of independent learning in elementary school. *Jurnal Basicedu*, 6(4), 7174–7187. <https://dx.doi.org/10.31004/basicedu.v6i4.3431>
- Setiyani, U. F., Wijayanti, A., & Artharina, F. P. (2019). Development of macromedia flash interactive CD based on character values subtheme 1 me and my ambition grade IV. *Jurnal Sinektik*, 2(2), 185–198. <https://doi.org/10.33061/js.v2i2.3331>
- Sumarsono, A., & Sianturi, M. (2019). Opportunities for interactive media in supporting the effectiveness of thematic learning in elementary schools. *Jurnal Pendidikan Edutama*, 6(2), 101–110. <https://doi.org/10.30734/jpe.v6i2.353>
- Trianto. (2011). *Designing an innovative-progressive learning model: Concept, foundation, and implementation in the school level curriculum (KTSP)*. Kencana Prenada Media Group.
- Violadini, R., & Mustika, D. (2021). Development of e-modules based on inquiry methods in thematic learning in elementary schools. *Jurnal Basicedu*, 5(3), 1210–1222. <https://doi.org/10.31004/basicedu.v5i3.899>
- Wahyugi, R., & Fatmariza. (2021). Interactive multimedia development using macromedia flash 8 software as an effort to increase elementary school students' learning motivation. *Edukatif: Jurnal Ilmu Pendidikan*, 3(3), 785–793. <https://doi.org/10.31004/edukatif.v3i3.439>
- Wibowo, S. A., Murtono, Santoso, & Utaminingsih, S. (2021). Effectiveness of developing textbooks based on multicultural character values on students' critical thinking skills. *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, 11(1), 54–62. <https://doi.org/10.24246/j.js.2021.v11.i1.p54-62>