Al-Ishlah: Jurnal Pendidikan
Vol.15, 4 (December, 2023), pp. 6278-6288
ISSN: 2087-9490 EISSN: 2597-940X, DOI: 10.35445/alishlah.v15i4.3609

Development of Integrated Thematic Learning Based on Seesaw in Fifth-Grade Elementary School

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ARTICLE INFO

Keywords:

Development;
Thematic Learning;
Seesaw

Article history:

Received 2023-02-18
Revised 2023-03-30
Accepted 2023-12-07

ABSTRACT

The use of smartphones in students' daily lives causes low student motivation to learn, especially after the Covid-19 pandemic. Students prefer to use their smart phones rather than studying. This causes low student learning outcomes. Innovative learning activities that make smartphones a fun learning medium for students are needed. The Seesaw digital class can be a solution to this problem. Therefore, this study explains the validity, practicality, and effectiveness of the Seesaw digital class in fifth-grade elementary schools. This research is a development research with a 4-D model. The participants were fifth-grade students from Cluster One Baso District, Agam Regency. The data collected in this study are validity data, practicality data, and data on the effectiveness of the Seesaw digital class. The data collection instruments used were questionnaires and interview sheets. The data obtained was then analyzed in the form of quantitative calculations and descriptive analysis. This development research produced a product in the form of Seesaw-based integrated thematic learning in elementary schools. The results of product validation in the form of Seesaw-based integrated thematic learning tools show that the product is valid based on the assessment made by the validator in a very valid category. The results of teacher responses and student responses for practicality with very practical categories. The results of the effectiveness test were seen from the learning outcomes of students who also increased. This shows that Seesaw-based integrated thematic learning is suitable for use in fifth-grade elementary schools.

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1. INTRODUCTION

The development of technology and science at this time requires us to also develop in every aspect of life, including in the world of education (Mozolev, 2018). Education must be adapted to developments in the 21st century and the characteristics of 21st-century students so that they can be motivated to learn and make learning activities meaningful (Aquino et al., 2017). One thing that is developing in the world of education is models, learning processes, and curricula which must be dynamic in keeping with the times (Morris & Imms, 2022);(Li et al., 2022). Learning is a process of changing behavior due to interaction with the environment so that meaningful results and experiences occur (Nizwardi & Ambyar, 2016). The current curriculum in Indonesia's education system is the 2013 curriculum, which is a series of improvements to the previous curriculum. The learning model used at

the basic education level is an integrated thematic learning model (Majid, 2014). Indonesia's dynamic education makes the curriculum and learning model used adapt to the times.

The integrated thematic learning model is in line with the 2013 Curriculum which expects students to be more active and critical in the learning process (Said et al., 2021);(Desyandri et al., 2019);(Desyandri & Vernanda, 2017). Integrated thematic learning can be said as a learning approach that involves several subjects to provide meaningful experiences to students (Starkey, 2019);(Fitria, 2019). Integrated thematic learning has characteristics, namely: 1) student-centred, 2) providing direct experience, 3) presenting concepts from various subjects in a theme, 4) being flexible, and 5) learning outcomes can develop according to the interests and needs of participants students (Agbo et al., 2021); (Syaifuddin, 2017).

Teachers in the implementation of integrated thematic learning activities ideally have the ability to package learning appropriately, and attractively, present the material in its entirety without any separation between subjects, and in accordance with the students' living environment (Fitria, 2017). Integrated thematic learning must combine several lesson contents into a unit whose components cannot be distinguished in a theme (Kazumaretha et al., 2020). In presenting the teacher using multimodal learning, using various media that can facilitate integrated thematic learning so that learning is interesting and meaningful (Hamidah & Syakir, 2019). The ability of this teacher has an impact on students' learning motivation which leads to the achievement of student learning activities (Fitria et al., 2018). But in reality, learning activities are still less varied. Teachers mostly use conventional models in the form of lectures using blackboard media. Even so, there are some teachers who have used projector media by displaying pictures or videos. It's just that its use is still monotonous. The use of smartphones also has an effect on students' motivation to learn. The occurrence of the Covid-19 pandemic requires students to study from home and use smartphones as a medium between teachers and students. But lately, smart phones owned by students are not used for learning but instead are misused to play games, or view content that is not good on social media. From the various problems above, there is a need for innovation in learning activities to utilize smartphones owned by students as learning tools for students so they are not misused.

Innovative learning activities must be able to utilize smart phones as learning media, be attractive to students, be able to display pictures, videos, and have an attractive appearance so that students don't just use their smartphones to play around. Classrooms that have been in schools have been moved into a program that is available on smartphones. A program that can be used as a solution is the Seesaw digital class. Seesaw digital class is one of the programs on smartphones that offers various learning features such as text, PDF, links, images and videos with QR codes so that students can do assignments and send their assignments at any place and time (Ratnaningsih, 2018). Johns (2017) argues that Seesaw is a digital portfolio that provides a safe and private place to keep assignments and projects that teachers can share with students and parents. Learners can upload photos, videos, images, text, PDFs, and links to showcase their learning. Almost the same as similar digital classes, Seesaw has features such as classrooms that can be used to upload teaching materials, videos or images that can be accessed and commented on by students, monitoring from parents of students, evaluation rooms and class links that make it easier students to join the digital classroom. The difference is that the features contained in the seesaw digital class are more numerous, easy to use, and can be accessed by teachers, students, and parents anywhere and anytime.

The digital class is a learning system that combines face-to-face or distance learning using application facilities which are considered a modern learning option with various advantages (Sutame, 2019). Even so, Seesaw's digital class has advantages that similar digital classes don't have, namely there is a link upload feature, whiteboard scribbles and teacher notes. In the aforementioned features, teachers can enter voice notes or music that can make students enjoy learning activities (Seesaw | Elevate Learning in Elementary, 2021). These interesting features can facilitate multimodal learning, a learning that uses a variety of media and combines them in a learning activity (Chai & Wang, 2022). In the Seesaw digital class, students can see pictures, listen to music, and read in a learning activity, which

is the scope of semiotic modes, namely visual media, auditory media, and linguistic media which are included in the type of multimodal learning (Ruck, 2020). In addition to multimodal learning, Seesaw's digital class can also facilitate students in multiliteracy learning, a learning that optimizes various literacy skills such as reading skills, speaking skills, and writing skills (Tursiva et al., 2021). These skills can be honed with the features contained in the Seesaw digital class.

Furthermore, there are features that can help parents, in the form of announcement features that can be seen by students and parents, or announcements that can be uploaded privately to students or parents. Parents can monitor how their child's learning progress in Seesaw's digital classroom and interact with teachers. Then, there is a ranking feature of students' abilities to participate in learning at Seesaw, making it easier for teachers and parents to evaluate student learning (Seesaw | Elevate Learning in Elementary, 2021).

In addition, Seesaw's digital class is also in accordance with the characteristics of students who are often referred to as Generation Alpha. Generation Alpha or the generation born from 2011-2025 is the generation that is most familiar with technology compared to the previous generation (Purnama, 2018). Technology for Generation Alpha is part of their lives. This causes this generation to often want things that are instant and do not appreciate the process (Umardin, 2017). Generation Alpha is also happy with the presentation of information that is designed to be attractive and fun, such as color images, videos or animations (Palupi et al., 2015). In fact, today's students are easier to understand and faster in mastering technology than the previous generation. They can easily fiddle with their smartphones without any difficulty. In doing assignments, students are looking for fast ways to find sources on the internet rather than finding valid sources from books or journals. They prefer sending homework through social media rather than taking notes from the blackboard. Instead of learning using books, students currently prefer learning from videos or colorful pictures. This is certainly very influential on the learning activities of students today who are Generation Alpha who live in the 21st century. Learning by utilizing technology is more interesting than learning by using textbooks.

There were Previous studies related to Seesaw, such as research conducted by Ryan (2018). The article focuses on the use of Seesaw digital classrooms in kindergartens. The results of the study show that the Seesaw digital class feature can assist parents in monitoring their child's learning progress. Riadil (2020) research, with a focus on teaching English: A new sophisticated technique for growing digital native learners' vocabulary by utilizing Seesaw media as digital literacy. It indicates that Seesaw helps students to improve reading skills. Furthermore, 's (2022) research focuses on the application of seesaws to language skills in early childhood. It is seen that Seesaw develops language skills in using communication skills.

The difference between this research and previous research is the object of research, where the object of previous research is kindergarten students and high school students. While this research object to fifth grade elementary school students. Then, the use of Seesaw digital classes focuses more on parental supervision, or improving language learning. Meanwhile, this research focuses on how Seesaw-based integrated thematic learning is developed in elementary schools. Finally, the three previous studies were not development research, while this research was development research. The renewal of this research is research to develop a seesaw-based integrated thematic learning model at the elementary school level. While the focus of this research is on the validity, practicality, and effectiveness of Seesaw-based integrated thematic learning in fifth grade elementary schools.

2. METHODS

2.1 Research Model

This research is development research with a 4-D model proposed by Thiagarajan (Mulyatiningsih, 2019). The 4-D model has four stages, namely the define, design, develop, and disseminate stages (Thiagarajan, 1976). This study aims to develop seesaw-based integrated thematic learning products in grade five elementary schools. Development research is a systematic assessment carried out to developunew products or improve existing products that meet valid, practical, and

effective criteria (Kantun, 2013);(Sutarti & Irawan, 2017). The products produced for education can be in the form of learning designs, learning models, learning media, training, guidance, evaluation tools, and others (Imania, 2019).

2.2 Research Procedure

This development research began with finding and finding information in the form of study literature reviews of field studies in the form of interviews and observations to several elementary schools. The next procedure is to carry out the research using a 4-D model consisting of four stages. The first stage is the define stage, which is the stage of curriculum analysis and determining the targets of the learning process carried out in the research. The second stage is the design stage, which is to prepare the design of the learning implementation and the material to be developed. The third stage is development, which is the stage of designing and producing a valid, practical, and effective product. The fourth stage is the disseminate stage, which is the stage of dissemination of the products that have been made.

2.3 Data Collection Techniques

The data collected in this study are product validity data, product practicality data, and product effectiveness data. Product validation data were obtained from validation instruments which were assessed by five validators, namely four expert validators from university lecturers and one practitioner validator from elementary school teachers. The validation carried out is the validation of learning tools in the form of lesson plans, teaching materials, and student worksheets that have been developed. The activities carried out by the validator are providing suggestions and values for the developed product. Product practicality data is obtained from practicality instruments filled out by teachers and students. This data is in the form of teacher and student responses to the developed product. Effectiveness data seen from the results of the analysis of student learning outcomes. The product is declared effective if student learning outcomes are good and increase.

This research involved school principals, fifth-grade teachers, and fifth-grade students in Cluster One, Baso District, Agam District, totaling 6 schools. One school became the experimental class, and 5 schools became the deployment class. Practicality data and effectiveness data were obtained in the experimental class.

2.4 Data Analysis Techniques

The data obtained from the data collection instrument is then analyzed in the form of quantitative calculations and descriptive analysis (Zakariah et al., 2020);(Yeni et al., 2018). The data analyzed in the form of quantitative calculations are validation instrument data, effectiveness instruments, and effectiveness data in the form of student learning outcomes. All validation and practicality methods collected from validation and practicality instruments were analyzed to find the average score. The formula for finding the average score is as follows (Riduwan, 2020):

$$\bar{X} = \frac{\sum X}{n} \times 100$$

Information:

$\bar{X}$ = average score

$\sum$X = number of scores

n = number of assessments

The average validity and practicality scores are interpreted based on the valid criteria and practicality of a product being developed. The criteria for the validity and practicality of a product can be seen in the following table (Riduwan, 2020):

Table 1. Product Validation Criteria

Percent	Category
1 – 20	Invalid
21 – 40	Less Valid
41 – 60	Valid Enough
61 – 80	Valid
81 – 100	Very Valid

Table 2. Product Practicality Criteria

Percent	Category
1 – 20	Impractical
21 – 40	Less Practical
41 – 60	Pretty Practical
61 – 80	Practical
81 - 100	Very Practical

Data on the effectiveness of learning tools can be obtained from the analysis of several data collection instruments for the analysis of student learning outcomes tests. The product effectiveness test is carried out with a one-group research design pretest-posttest design is a research design that provides initial tests to students before being given treatment, after being given treatment, then gives the final test (Arikunto, 2010). The initial test is given treatment in the form of seesaw-based integrated thematic learning activities. After being given treatment, students are again given the final test, which is the same student learning outcomes test questions to do. The results of both tests were analyzed, and their effectiveness with the Gain score was found.

In analyzing the initial test and the final test, a calculation of the effectiveness of seesaw-based integrated thematic learning using the N-Gain score (Hake, 1998) was carried out with the following formula:

$$Score\ N-Gain = \frac{spost - spre}{smax - spre}\ x\ 100$$

Information:
Spost = final test score
Spre = initial test score
Smax = ideal maximum score (100)

The calculation results are then matched with the effectiveness assessment criteria by Hake (1998) which can be seen in the table:

Table 3. Seesaw-based Learning Effectiveness Criteria

Percentage	Category
< 40	Ineffective
40 – 54	Less effective
55 – 74	Quite Effective
> 75	Effective

After being analyzed in the form of quantitative calculations, the data is then described in the form of a descriptive analysis (Silalahi, 2018). The process of implementation, analysis and results of data validation, practicality and effectiveness are then explained descriptively one by one.

3. FINDINGS AND DISCUSSION

Implementation of Seesaw-based integrated thematic learning development research in fifth-grade elementary schools on the theme of five-ecosystem using a 4-D development model that produces valid, practical, and effective learning tools. The results of this development research are divided into four stages, namely: define stage, design stage, develop stage, and disseminate stage. More details can be described as follows:

3.1 Define Stage Result

Initial, student, concept, task, and learning objective analyses are all part of the define stage's multi-faceted examination. During the defining step, various aspects are examined, including the initial analysis. The researcher now uses the first observations as a foundation to identify the challenges. Researchers observed classroom instruction and student work in fifth grade, as well as interviewed instructors and students in that grade. Students often struggle to meet the year-end evaluation benchmarks because there is not enough variety in their learning activities, which in turn reduces their motivation to actively participate in both teaching and learning. Not only do students fail to engage in a wide range of learning activities, they also waste their smartphones on social media and games instead of putting them to good use.

If the issues identified by the researchers are linked to the problems, one potential remedy is to employ cellphones, which are already familiar to students in their daily lives. Smartphones serve as a medium for students to access digital classes. Digital class refers to an educational approach that incorporates the use of cellphones for learning purposes. Utilising smartphones for educational purposes presents a viable resolution to the encountered challenges. The following examination pertains to student aspects, specifically the scrutiny of student traits. Generation Alpha refers to the current cohort of pupils that are now enrolled in primary school. This current generation possesses the highest level of familiarity with technology. Generation Alpha learners exhibit a greater inclination towards acquiring knowledge through technology as opposed to traditional book-based learning. The content provided to pupils should be crafted to be visually appealing and enjoyable, incorporating elements such as vibrant graphics, videos, or animations. Based on classroom observations, students displayed greater interest when the teacher utilised visual media such as films or photos, as opposed to reading books.

Based on the results of the analysis of students and the results of the analysis of objectives, a digital class is needed that can facilitate Generation Alpha students in learning. Seesaw's digital class is a solution to the problems faced because it can provide students with color images, videos, and animations. Concept analysis is an analysis carried out by researchers to identify the concept of integrated thematic learning in fifth grade of elementary school which is in accordance with the development of Seesaw-based integrated thematic learning. The analysis is carried out in the form of an analysis of core competencies, basic competencies, learning indicators, learning objectives, learning materials, and learning resources used during development research. Researchers and class teachers collaborate in determining the concept analysis that fits the needs of the class.

The next analysis is task analysis, which is an analysis carried out by researchers to study the main tasks that must be mastered by students and classroom teachers in order to be able to follow the expected development activities. The main task of students is to follow the implementation of research as well as possible and the main task of classroom teachers in this development research is to observe and follow the implementation of development research carried out. Finally, the analysis of learning objectives is the result of a summary of the results of the concept analysis and the results of the analysis of objectives. In this case, the researcher found that in this development research, he developed the theme of five-Ecosystem because the core competencies and basic competencies in learning are suitable for Seesaw-based integrated thematic development research and are suitable for the tasks of students and teachers at the time of carrying out the research.

3.2 Design Stage Result

This step involves developing an integrated theme learning curriculum for fifth-grade elementary students using Seesaw. It includes creating a learning design, formulating a plan for implementing the curriculum, preparing teaching materials, and developing questions and answers. This step involves the development of instructional materials that will be used in the implementation of the learning process, based on the analysis conducted. Subsequently, the researchers devised a comprehensive strategy for applying theme learning, utilising Seesaw as a guiding tool for teachers

during the learning process. The researchers developed 18 lesson plans for 18 sessions centred around five different ecosystem topics. In addition, the researchers created educational resources, specifically instructional materials and student handouts, for a total of 18 sessions. At the design stage, the last step is to compile a learning assessment. Learning assessment is necessary to measure the degree of success in implementing learning activities. The exam is comprised of three distinct components: attitudes, knowledge, and abilities. Displayed below is an exemplar image of the engineered apparatus:

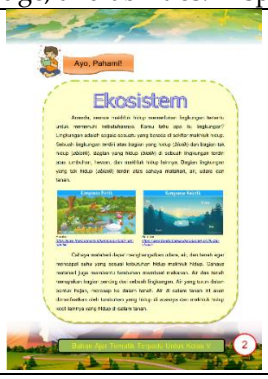

Figure 1: Teaching Materials

Figure 2: Learning Implementation Plan

Figure 3 : Student Worksheet

The product design results are then tried out to test their validity, practicality, and effectiveness.

3.3 Develop Stage Result

The development stage includes the validation of Seesaw-based integrated thematic learning tools in fifth grade in the form of learning implementation designs, teaching materials, and evaluations. Furthermore, product trials were carried out to see the practicality and effectiveness of the developed learning tools. Validity testing is done by validating learning tools by validators, namely experts and practitioners which are then revised so that the learning tools become valid. Practicality testing is collecting practicality data based on responses from teachers and students. Following are the results of each stage:

3.3.1 Validity Results

The validation carried out was the validation of learning tools in the form of learning implementation designs, teaching materials, and student worksheets. Validation is carried out by five validators to validate whether the product is valid or not. Three validators to validate product content, learning implementation plans, and student worksheets. One validator for language. And one validator for media view. The validity of the overall learning implementation design has a score of 197 with an average score of 85 with a very valid category. The validation of the device, namely teaching materials and student worksheets, overall obtained a score of 226, an average of 84, with very valid criteria. In device validation, there are two aspects that are validated, namely the content aspect and the presentation aspect. Validation of the content aspect obtained a score of 147, an average of 82, with a very valid category. In the presentation aspect of the language field, a score of 40 was obtained, an average of 100, with a very valid category. In the aspect of the presentation of the media field, a score of 39 was obtained, an average of 81, with a very valid category. The overall validation results can be seen in the table:

Table 4. Overall Validation Results

No.	Aspects	Score	Average	Category
1.	Content	147	82	
2.	Language	40	100	Very Valid
3.	Media	39	81	
Overall average		226	84	

So, it can be concluded that the Seesaw-based integrated thematic learning tools in fifth grade Elementary School media are valid and can be used in the learning process.

3.3.2 Practicality Results

Practical learning is carried out to see how practical the integrated thematic learning developed in elementary schools is. This practicality is seen from the aspect of the teacher's response and the aspect of the student's response. The data were obtained from the experimental class, namely the fifth grade of SD Negeri 01 Baringin Anam, Baso District, Agam Regency, namely the class teacher and 20 students. Analysis of the teacher's response questionnaire data on the practicality of learning obtained a score of 36 with an average of 90 with a very practical category. Analysis of data from the student response questionnaire to the practicality of learning obtained a score of 751, an average of 90, with a very valid category. The results of the overall learning practicality response can be seen in the table:

Table 5. Results of the Overall Learning Practicality Response

No.	Response	Score	Average	Category
1	Teacher	36	90	Very Parktis
2	Learners	751	90	Very Practical
Sum		787	90	Very Practical

The results of the overall learning practicality response obtained a score of 787, an average of 90, with a very practical category.

3.3.3 Effectiveness Results

The effectiveness of learning is carried out to see the extent of the effectiveness of Seesaw-based integrated thematic learning in learning activities. Whether or not a learning development is effective can be seen from the results of the initial test before the treatment and the final test after the treatment. The results obtained in the calculation of the initial test results and the final bag are used as a reference to determine the effectiveness of the product (Putra & Fitrayati, 2021). The treatment given is a trial of products developed by students ' learning (Riantika & Mukminan, 2019).

Students are given an initial test in the form of questions that must be answered before being given treatment. The pre-test answers were then analyzed to find the pre-test average score. After being given treatment in the form of Seesaw-based integrated thematic learning, students were again tested with the same questions. The test answers are then analyzed to determine the final test average score. The results of the initial test and the final test are then calculated by determining the N-Gain score to show whether or not the product developed is effective (Hidayati & Aslam, 2021). The data were obtained from experimental class students, namely grade five at SD Negeri 01 Baringin Anam, Baso District, Agam Regency.

Based on the results of the initial test and the final test of the learners, it can be seen that seesaw-based integrated thematic learning in class V is effective to use. The initial test results, students obtained an average score of 67 with details of 6 completed students and 13 students were incomplete. After being given treatment in the form of Seesaw-based integrated thematic learning, student learning outcomes increased with an average score of 91 with a detailed 19 students completed. The results of the initial test and final test can be seen in the following table:

Table 6. Results of the Initial Test and Final Test

	Completed	**Incomplete**	**Average Score**
Initial Test	6 students	13 students	67
Final Test	19 students	0 students	91

The results of the pre-test and post-test are then used to calculate the effectiveness of the product using the N-Gain formula to determine the effectiveness assessment criteria based on Hake (1998). The

percentage of the N-Gain score calculation is 75 which indicates that the product being developed is effective.

Thus, the learning outcomes of aspects of student skills using Seesaw digital classes have increased. So, with the increase in learner learning outcomes, it indicates that Seesaw-based integrated thematic learning is effective.

3.3.4 Disseminating Stage Result

The final stage of the research is the dissemination stage. This stage is the stage for introducing product development so that it can be accepted and applied by the community (Mairina & Hadiyanto, 2022);(Thiagarajan, 1976). In this study, the product in the form of Seesaw-based integrated thematic learning was socialized to other schools as a dissemination school. This stage aims to apply the product not only in the experimental class but also to classes in nearby schools such as dissemination schools. There are five schools as distribution schools located in cluster one, Baso district, Agam Regency. The distribution was carried out in the fifth grade of each school, involving teachers and fifth grade students.

The researcher promoted the product by providing technical help on how to use the Seesaw digital class to the fifth grade instructors of the dispersion schools. Following the completion of socialisation, educators and researchers initiated the development of integrated theme learning using the Seesaw platform, tailored to the specific requirements of the schools involved in the implementation. Subsequently, the teacher and the researcher conducted two trials of the product in each dissemination class. Teachers and students have shown a positive reception and comprehension of the distributed items, as evidenced by observations and interviews.

4. CONCLUSION

The study's conclusion is that this research project has resulted in the creation of a product for elementary schools, which is an integrated themed learning system based on Seesaw. The product validation results, obtained through the utilisation of an integrated Thematic learning tool called Seesaw, indicate that the product is valid. This conclusion is based on assessments conducted by validators, who achieved an overall average score of 88. The assessments were found to be highly valid across many categories. The teacher's and student's responses regarding practicality were evaluated and received a score of 90, indicating a high level of practicality. The effectiveness of the first test and final test findings is determined by calculating the N-Gain score, using a proportion of 75. This score indicates that the developed product is effective. This initiative aims to design diverse educational activities that align with technological advancements and cater to the specific traits of students. It involves harnessing the potential of smartphones, which are currently being overused by students for non-educational purposes such as gaming or accessing irrelevant content. A limitation of this research is that the research output exclusively focuses on the integrated thematic learning of fifth grade topics, rendering it unsuitable for other themes and courses. The deployment was limited to a school cluster scale due to constraints in time, labour, and money. It is anticipated that future research will expand the scope of the study product to encompass a broader range of classes in elementary schools.

REFERENCES

Agbo, F. J., Oyelere, S. S., Suhonen, J., & Tukiainen, M. (2021). Scientific Production and Thematic Breakthroughs in Smart Learning Environments: A Bibliometric Analysis. *Smart Learning Environments*, *8*(1), 1–25. https://doi.org/10.1186/S40561-020-00145-4/FIGURES/12

Agnes, T. (2022). Pengaruh Aplikasi Seesaw Terhadap Kemampuan Bahasa Pada Anak Usia Dini. *Jurnal Caksana : Pendidikan Anak Usia Dini*, *1*(2), 45–54.

Aquino, C. T. E. de, Robertson, R. W., Allen, P., & Withey, P. (2017). A global learning-centered approach to higher education: workplace development in the 21st century. *Tecnología, Ciencia y Educación*, *6*(6), 34–48. https://doaj.org/article/0786b1e0b6f04094aad484a0ef2e0a8e

Chai, W., & Wang, G. (2022). Deep Vision Multimodal Learning: Methodology, Benchmark, and Trend. *Applied*

Sciences 2022, Vol. 12, Page 6588, *12*(13), 6588. https://doi.org/10.3390/APP12136588

Cipta, S. A.-J. R., & 2010, undefined. (n.d.). Metode peneltian. *A-Research.Upi.Edu*. Retrieved July 26, 2022, from http://a-research.upi.edu/operator/upload/s_pkn_0705452_chapter3.pdf

Desyandri, Desyandri, Muhammadi, M., Mansurdin, M., & Fahmi, R. (2019). Development of Integrated Thematic Teaching Material used Discovery Learning Model in Grade V Elementary School. *Jurnal Konseling Dan Pendidikan*, *7*(1), 16–22. https://doi.org/10.29210/129400

Desyandri, Dori, & Vernanda. (2017). Pengembangan Bahan Ajar Tematik Terpadu di Kelas V Sekolah Dasar Menggunakan Identifikasi Masalah. *Seminar Nasional HDPGSDI Wilayah 4*, 163–174. https://ejournal.unpatti.ac.id/ppr_paperinfo_lnk.php?id=1720

Fitria, Y. (2017). Efektivitas Capaian Kompetensi Belajar Siswa Dalam Pembelajaran Sains di Sekolah Dasar. *Jurnal Inovasi Pendidikan Dan Pembelajaran Sekolah Dasar*, *1*(2). https://doi.org/10.24036/jippsd.v1i2.8605

Fitria, Y. (2019). *Landasan Pembelajaran Sains Terintegrasi (Terpadu) untuk Level Dasar*. Sukabina.

Fitria, Y., Nurul Hasanah, F., & Gistituati, N. (2018). Critical Thinking Skills of Prospective Elementary School Teachers in Integrated Science-Mathematics Lectures. *Journal of Education and Learning (EduLearn)*, *12*(4), 597–603. https://doi.org/10.11591/edulearn.v12i4.9633

Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American Journal of Physics*, *66*(1), 64–74. https://doi.org/10.1119/1.18809

Hamidah, J., & Syakir, A. (2019). Dampak Penerapan Kurikulum 2013 bagi Guru Sekolah Dasar di Kecamatan Alalak (Kajian Fenomenologi Pendidikan). *Jurnal Dealektik*, *1*(2), 75–82.

Hidayati, I. D., & Aslam, A. (2021). Efektivitas Media Pembelajaran Aplikasi Quizizz Secara Daring Terhadap Perkembangan Kognitif Siswa. *Jurnal Pedagogi Dan Pembelajaran*, *4*(2), 251. https://doi.org/10.23887/jp2.v4i2.37038

Imania. (2019). Rancangan Pengembangan Instrumen Penilaian Pembelajaran Berbasis Daring. *Jurnal Petik*, *5*(1), 31–47.

Kantun, S. (2013). Hakikat dan Prosedur Penelitian Pengembangan. In *Repositori Universitas Jember*.

Kazumaretha, T., Arisanti, Y., & Fitria, Y. (2020). Implementasi Kompetensi Pedagogik Guru dalam Pembelajaran Tematik di Sekolah Dasar. *SEJ (School Education Journal*, *10*(2).

Li, Y., Kim, M., & Palkar, J. (2022). Using emerging technologies to promote creativity in education: A systematic review. *International Journal of Educational Research Open*, *3*, 100177. https://doi.org/10.1016/J.IJEDRO.2022.100177

Mairina, V., & Hadiyanto, H. (2022). The development of Interactive Multimedia for Elementary School Students. *AL-ISHLAH: Jurnal Pendidikan*, *14*(2), 1785–1792. https://doi.org/10.35445/ALISHLAH.V14I2.1801

Majid, A. (2014). *Pembelajaran Tematik Terpadu*. Remaja Rosdakarya.

Morris, J., & Imms, W. (2022). Progettare e utilizzare spazi di apprendimento innovativi: cosa hanno da dire gli insegnanti. *IUL Research*, *3*(6), 7–25. https://doi.org/10.57568/IULRES.V3I6.295

Mozolev, O. (2018). Pedagogical Projecting of the Model of a Future Specialist. *Pedagogical Discourse*, *24*, 82–87. https://doi.org/10.31475/PED.DYS.2018.24.12

Mulyatiningsih, E. (2019). Pengembangan Modul Pembelajaran. *Imajiner: Jurnal Matematika Dan Pendidikan Matematika*, *1*(5), 224–236. https://doi.org/10.26877/imajiner.v1i5.4473

Nizwardi, J., & Ambyar. (2016). *Media dan Sumber Pembelajaran*. Kencana.

Palupi, Y., Pd, M., Pengajar, S., Pgsd, P., Pgri, I., & Abstrak, W. (2015). DIGITAL PARENTING SEBAGAI WAHANA TERAPI UNTUK MENYEIMBANGKAN DUNIA DIGITAL DENGAN DUNIA NYATA BAGI ANAK. *Seminar Nasional Universitas PGRI Yogyakarta*.

Purnama, S. (n.d.). *Al Hikmah Proceedings on Islamic Early Childhood Education Pengasuhan Digital untuk Anak Generasi Alpha*. Retrieved July 26, 2022, from http://conference.staialhikmahtuban.ac.id/index.php/ah-piece

Putra, H. A. D., & Fitrayati, D. (2021). Efektivitas Model Pembelajaran Blended Learning Untuk Meningkatkan Keterampilan Berpikir Kritis Peserta Didik Pada Pelajaran Ekonomi. *Edukatif : Jurnal Ilmu Pendidikan*, *3*(4), 1765–1774. https://edukatif.org/index.php/edukatif/article/view/676

Ratnaningsih, P. W. (2018). Students' Lived Experience of Using Seesaw Class Application in English I Class. *Science, Engineering, Education, and Development Studies (SEEDs)*, *2*, 2615–4382.

Riadil, I. G. (2020). Teaching English: An afresh sophisticated technique to cultivate digital native learners' vocabulary by utilizing seesaw media as digital literacy. *Journal of Research on English and Language Learning (J-REaLL)*, *1*(2), 62.

Riantika, R. F. P., & Mukminan, M. (2019). Efektivitas Model Pembelajaran Blended Learning untuk Meningkatkan Hasil Belajar Geografi pada Materi Litosfer Kelas X SMA. *Jurnal Pendidikan: Teori, Penelitian, Dan*

Pengembangan, *4*(12), 1723. https://doi.org/10.17977/jptpp.v4i12.13105

Riduwan, A. (2020). Rumus dan Data dalam Analisis Statistika . In *Rumus dan Data dalam Analisis Statistika* . Alfabeta. https://career.itbwigalumajang.ac.id/index.php?p=show_detail&id=18594&keywords=

Ruck, J. (2020). Elementary-level Learners' Engagement with Multimodal Resources in Two Audio-visual Genres. *The Language Learning Journal*, *50*(3), 328–343. https://doi.org/10.1080/09571736.2020.1752291

Ryan, A. (2018). *Masters of Education in Teaching and Learning What Happens When the Seesaw App is Used in a Kindergarten Classroom ?*

Said, N. A. M., Bujang, S. M., Buang, N. A., Siraj @ Ramli, H. H., & Besar, M. N. A. (2021). CONCEPTUALIZING CRITICAL THINKING LEARNING TRANSFER MODEL: A QUALITATIVE APPROACH. *Malaysian Journal of Learning and Instruction*, *18*(1), 111–130. https://doi.org/10.32890/MJLI2021.18.1.5

Seesaw | Elevate Learning in Elementary. (n.d.). Retrieved July 26, 2022, from https://web.seesaw.me/

Silalahi, U. (2018). Metodologi Analisis Data Dan Intepretasi Hasil Untuk Penelitian Sosial Kuantitatif. In *Journal Manajemen*. Refika Aditama.

Starkey, L. (2019). A Review of Research Exploring Teacher Preparation for the Digital Age. *Cambridge Journal of Education*, *50*(1), 37–56. https://doi.org/10.1080/0305764X.2019.1625867

Sutame, K. (2019). Membangun Kelas Digital Berbasis Classroom SMK Negeri 3 Banjarmasin. *SENPIKA*, *2*(1), 92–106.

Sutarti, T., & Irawan, E. (2017). *Kiat Sukses Meraih Hibah Penelitian Pengembangan*. Deepublish. https://books.google.co.id/books?hl=id&lr=&id=-RInDwAAQBAJ&oi=fnd&pg=PA1&dq=penelitian+pengembangan+adalah&ots=qIzaNUbhKa&sig=JYjph-DRe0h4nDYLzY_pU4YmOYY&redir_esc=y#v=onepage&q=penelitian pengembangan adalah&f=false

Syaifuddin, M. (2017). Implementasi Pembelajaran Tematik di Kelas 2 SD Negeri Demangan Yogyakarta. *Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah*, *2*(2), 139.

The Delta Kappa Gamma Bulletin. (2017).

Thiagarajan, S. (1976). Instructional development for training teachers of exceptional children: A sourcebook. *Journal of School Psychology*, *14*(1), 75. https://doi.org/10.1016/0022-4405(76)90066-2

Tursiva, E., Rahman, R., & Ahwi, R. S. (2021). Multiliteracy Careful Reading Model Based on 21st Century Skills in Primary Schools. *International Conference on Elementary Education*, *3*(1), 172–179. http://proceedings.upi.edu/index.php/icee/article/view/1459

Umardin, Y. (2017). Menjadi Orang Tua dari Generasi Alpha. In *2017*. http://www.familyguideindonesia.com/assets/widget/file/FG_44_Calameo.pdf

Yeni, F., Zelhendri, Z., & Darmansyah. (2018). *Penelitian Pendidikan* (1st ed.). Kencana.

Zakariah, A., Afriani, V., & Zahariah, M. (2020). *Metodologi Penelitian Kualitatif, Kuantitatif, Action Research*. Yayasan Ponpes Al-Mawaddah Warahmah. https://books.google.co.id/books?hl=id&lr=&id=k8j4DwAAQBAJ&oi=fnd&pg=PA82&dq=teknik+analisis+data+r%26d&ots=13Ux0k14nK&sig=O1jCF2vEf7I0cqTe9ranooa7ZNU&redir_esc=y#v=onepage&q=teknik analisis data r%26d&f=false