Jurnal Edutech Undiksha
Volume 11, Number 1, Tahun 2023, pp. 54-63
P-ISSN: 2614-8609 E-ISSN: 2615-2908
Open Access: https://doi.org/10.23887/jeu.v11i1.57953

Contextual-Based Mathematics Learning Videos on Fifth-Grade Fraction Material

Desak Ketut Sri Galuh[1*], Gusti Ngurah Sastra Agustika[2]

[1] Pendidikan Dasar, Universitas Pendidikan Ganesha, Singaraja, Indonesia

ARTICLE INFO

Article history:
Received January 28, 2023
Accepted May 29, 2023
Available online June 25, 2023

Kata Kunci:
Video Pembelajaran, Kontekstual, Matematika

Keywords:
Learning Videos, Contextual, Mathematics

This is an open access article under the CC BY-SA license.
Copyright © 2023 by Author. Published by Universitas Pendidikan Ganesha.

ABSTRAK

Konsep matematika yang sulit dipahami siswa, membuat siswa mudah lupa. Penelitian ini memiliki tujuan untuk menciptakan suatu media pembelajaran berupa video berbasis kontekstual di dalam mata pelajaran matematika serta dilengkapi dengan evaluasi dampak terhadap hasil belajar yang didapatkan oleh siswa pada kelas 5 SD. Jenis penelitian ini yaitu pengembangan dengan menggunakan model ADDIE. Empat ahli dan semua siswa kelas 5 dijadikan sebagai subjek penelitian. Teknik pengumpulan data yang terdiri dari wawancara, kuesioner, dan tes. Instrumen pengumpulan data dengan kuesioner. Teknik analisis data menggunakan statistik inferensial, analisis statistik deskriptif, analisis deskriptif kuantitatif, serta dengan analisis deskriptif kualitatif. Hasil penelitian yaitu semua aspek telah ditetapkan valid pada uji ahli desain sebesar 90%, uji ahli materi sebesar 92,30%, uji ahli desain pembelajaran 90,90%, uji ahli media pembelajaran 91,07%, uji coba personal sebesar 93,94%, uji coba kelompok kecil 93,69%, dan uji coba lapangan sebesar 92,42%. Hasil uji keefektifan menunjukkan seberapa baik media video pembelajaran yang dibuat dapat diterapkan pada konten matematika. Disimpulkan bahwa penggunaan media video pembelajaran berbasis kontekstual ini dalam proses pembelajaran sangat valid dan efekti sehingga dapat meningkatkan hasil belajar siswa.

ABSTRAK

Mathematical concepts that are difficult for students to understand make them easy to forget. This study aims to create a learning media through contextual-based videos in mathematics. It is equipped with an impact evaluation on learning outcomes obtained by students in grade 5 of elementary school. This type of research is developed using the ADDIE model. Four experts and all grade 5 students were used as research subjects. With data collection techniques consisting of interviews, questionnaires, and tests. Data collection instrument with a questionnaire. Data analysis techniques used inferential statistics, descriptive statistical analysis, quantitative descriptive analysis, and qualitative descriptive analysis. The results of the research are that all aspects have been determined valid in the design expert test by 90%, material expert test by 92.30%, learning design expert test by 90.90%, learning media expert test by 91.07%, personal trial by 93.94 %, small group trials 93.69%, and field trials 92.42%. The effectiveness test results show how well the learning video media can be applied to mathematics content. It was concluded that using contextual-based learning video media in the learning process is valid and effective in improving student learning outcomes.

1. INTRODUCTION

Various innovations in the field of education are made possible by advances in communication and technology. These innovations include digital learning media, educational applications, and websites supporting school learning (Abuhassna et al., 2022; Sołtysik-piorunkiewicz, 2021). It impacts the education system, which naturally alludes to more complex technological ideas. Technology-based learning materials are novels or sophisticated media commonly used by students. The availability of technology-based learning materials can greatly assist in implementing the learning process, enabling students to better absorb the information being taught, participate more actively, and develop their independent learning skills (Hidayah, 2022; Lestari & Mustadi, 2020). The material provided often

*Corresponding author.
E-mail addresses: desak.sri.galuh@undiksha.ac.id (Desak Ketut Sri Galuh)

contains abstract things, so this confuses students. The role of the teacher here is very important, especially in creating a learning media in learning (Saraswati & Agustika, 2020; Sumarwati et al., 2020). As the face of education, teachers must be able to design interesting lessons for them. Students will better understand the material that tends to be abstract when connected to real-world experiences, making the educational process more effective (Annisa & Fitria, 2021; Asmara et al., 2019). To ensure that students learn mathematics meaningfully, teachers must be able to explain concepts to them by involving them directly in relating their subject matter to practical experience (Nengsi et al., 2021; Heald et al., 2022). Through this, students can learn how to acquire knowledge or understanding independently. Students will be able to easily apply what they have learned in their minds (Brinus et al., 2019; Rosa et al., 2022).

However, in learning mathematics, teachers often still apply rote methods with learning resources that rely only on textbooks (Hidayat et al., 2020). Students struggle to understand the material thoroughly and meaningfully as a result. Therefore, a teacher must be able to present material that is relevant to students' daily lives when they study mathematics. The use of appropriate learning approaches and teaching methods is needed so that students can better understand and understand the explanation of the subject matter provided by the teacher and concentrate more when the learning process takes place (Winda & Dafit, 2021; Mahardita & Japa, 2022) Mathematics learning is not abstract as a whole, but some lessons require teachers to make connections with students' daily lives (Giantara & Astuti, 2020; Renaldi et al., 2022). Based on the results of an interview with a fifth-grade homeroom teacher at SD Negeri 4 Gianyar regarding the teaching and learning process in class, the lecture method is used for learning mathematics. The teacher then uses worksheets and student handbooks as the only learning resources during the teaching and learning process. If students only use books to study in class, they tend to understand the subject matter abstractly and do not understand the concepts given (Geni et al., 2020; Melliyanti & Suniasih, 2022). In addition, it was observed that some students paid less attention to learning when learning was being carried out in class. Some students play an active role and can respond to questions posed by the teacher, but some are passive and occasionally engrossed. Mathematical material tends to be dense and abstract. Therefore it is necessary to provide a structured and in-depth understanding and present examples through concrete events and images to make it easier for students to understand the material (Rahmayani & Amalia, 2020; Kartika et al., 2019).

The solution to these problems is using video in the learning process to provide a more structured understanding of the material (Hafizatul, 2020). Learning videos can be interesting because they include audio in addition to student images and animations (Novita et al., 2019; Anwar & Anis, 2020). Students will automatically pay more attention to lessons and be more motivated to learn thanks to the use of animation in learning videos, which will increase students' knowledge competence. The concrete operational thinking stage, which usually occurs between the ages of 7 and 12, includes elementary school students in fifth grade. Children can perform concrete operations when they are in the concrete operations stage. Students can also reason logically about actual events, and children can rationally understand cause and effect (Fadiana et al., 2021). Children also have started to understand the idea of repentance at this time. It provides an opportunity to create instructional videos for mathematics that include real-world events (Wahyuni, 2020; Yayuk Junita Wulandari et al., 2018). The use of video media is expected to add a new dimension, especially in mathematics, where it will be easier for students to remember various concepts in these subjects, especially those related to fractions. Videos for education are related to real-world events (Komang Sri Asih Arina et al., 2021; Fauziah & Ninawati, 2022). Students will be able to understand the relationship between mathematical concepts and actual situations in this way, making learning mathematics more relevant.

The contextual approach is used as one of the strategies in a lesson that demands that learning content be closely related to real-world conditions (Hutapea et al., 2019). The contextual approach allows the teacher to relate what is learned to the situation (Aminah et al., 2022). Teachers may not provide material to students directly when providing learning resources. Adapted students are allowed to develop their knowledge. Through learning with students involved, teaching is considered the same and identical (Fadiana & Andriani, 2021; Mahardita & Japa, 2022). Applying this learning approach will involve students directly to explore their understanding. Innovation is one of the urgency, especially in developing a learning media adapted to the subjects in the class. Teachers and students need to be able to adjust things that become a problem, especially in the learning process. More specifically focused on mathematics subjects such as fractions and some of their associated material. So here, it is necessary to have a role or efforts made by the teacher to encourage students to play an active role, especially in learning mathematics. It becomes urgent because it can trigger students' interest in explaining a mathematical concept in a complex, audio-visual, meaningful, and effective way. Particular attention is paid to fifth-grade students at SD Negeri 4 Gianyar, where more video-based learning and mathematics are needed in order to bring them closer to implementing contextual learning in fractional material.

The findings of previous research that support this indicate that appropriate learning video media can be applied in a learning activity, can be easily mastered by a teacher, and helps or encourages students to understand various concepts in learning (Putu et al., 2021; Hafizatul, 2020). In addition, if this research is also considered, it is stated that using video media in self-learning can provide extraordinary benefits (Darson Tamu et al., 2020; Ilsa et al., 2020). However, when viewed from the findings of previous studies, there have been no results related to the contextual use of instructional video media in mathematics learning, to be exact, for fifth-grade students. The new research was conducted concurrently with previous research. Students can better understand the information presented in the media because examples such as pictures and animations are included in the growing media. This research uses contextual concepts to create a learning video media, especially in fraction material, for grade 5 students. In addition, another goal is to encourage students to play an active role in the learning process and increase the value of learning outcomes obtained by students.

2. METHOD

The ADDIE research model was used to categorize this research as development research (Analyze, Design, Development, Implementation, Evaluation). Creating a learning video using the ADDIE model used to overcome problems can be used as a learning resource to shape character and meet the needs of students. With organized activity steps, this model is programmatically structured. This development research uses the five-stage process of the ADDIE development model. 1) The first phase, or analysis phase. In order to collect the necessary data for the research, an analysis stage was carried out. Analyzing content, school learning environments, teacher and student needs, and educational infrastructure are all current activities. The second phase is design, which comes after that. Stage design includes selecting the program, making flowcharts and storyboards, making lesson plans, writing scripts, making character designs, creating engineer questionnaires, and validating technicians. Finally, there is the development stage. The process of turning a flowchart or storyboard that has been made into a work of art is called development. CapCut is a program to help create this media and Microsoft Office PowerPoint 2019. The validity of the questionnaire is also determined at this time, and the validator checks the media. 4) Implementation is the final stage. The final product is ready for sale after going through various product trials, including evaluations by professionals and students and obtaining good and correct evaluation results or quality assessments. Therefore, these products can already be used to improve teaching and learning in the classroom. A single-arm design with pre- and post-tests is used to conduct trials. This application is not very useful in finding out how effective the video learning materials are made. The fifth and final stage is evaluation. Evaluation is the final step in the development research process. Formatively and summatively are the methods used in this process. In this stage, a data collection activity is carried out based on the flow of stages in developing the product overcoming all deficiencies owned and perfecting product development. These useful evaluations help prevent or reduce errors in the finished product.

The test subjects for this study consisted of 24 fifth-grade elementary school students along with learning design experts, learning media experts, and subject matter experts who were used as research subjects, especially in product trials. This study focuses more on the level of learning achievement obtained by students, whether low, medium, or high, which is used as the target population. Several methods in it, such as observation, interviews, questionnaires, and tests, are utilized so that data collection can be carried out along with the information in it. Utilizing a questionnaire as a tool used in research with a closed nature. Then there are also several grids in the research instrument described in Table 1, Table 2, Table 3, and Table 4.

Table 1. Instruments of Design Experts

No.	Component	Indicator
1	Development style	1) Synchronization of the product development model used with product characteristics 2) The correctness of the development model justification
2	Development Stages	1) Compatibility of stages in the development of the model used 2) The correctness of the description of the stages of development
3	Clarity, Practicality and Consistency	1) The development model used determines how clear the stages of development are 2) The level of implementation of the adopted development process 3) The sequence of development phases
4	"Formative	1) Accuracy in implementing the evaluation strategy with the model used

No.	Component	Indicator
	Evaluation"	2) Evaluation tools are made clear 3) The reliability of the test subjects used

(Octavyanti et al., 2021)

Table 2. Material Expert Instruments

No.	Aspect	Indicator
1	Kurikulum	1) The material is adapted to basic competencies 2) The material is adjusted to the indicators in learning 3) The material is adapted to the learning objectives
		1) The concept of matter can be logically clear 2) The material is presented systematically 3) Appropriateness of material coverage 4) The material is adjusted to the characteristics of the students 5) Students can easily understand the material 6) Use of the right media 7) The material is explained according to the contextual approach
2	Grammar	1) The language used has a consistent and precise character 2) The suitability of the use of language with the character possessed by students

(N. Lestari, 2021)

Table 3. Instructional Design Expert Instruments

No.	Aspect	Indicator
1	Tujuan	1) Adjusting the goals in learning
2	Strategi	1) Can attract students' attention 2) Can motivate students 3) Can provide real examples 4) Deliver material systematically 5) Provide opportunities for students to learn independently
3	Evaluasi	1) The material is explained according to a contextual approach 2) Giving questions can test students' understanding 3) The questions presented are appropriate

(Melliyanti et al., 2022)

Table 4. Instruments of Learning Media Experts

No.	Aspect	Indicator
1	Technical	1) The use of media that is easy to use 2) Appropriateness of the duration of the learning video
2	Appearance	1) Text 2) Image 3) Color 4) Interesting Intro video 5) Appropriate use of music 6) The clarity of the narrator's voice

(Octavyanti et al., 2021)

This study uses data analysis procedures with differential statistical techniques, quantitative descriptive, descriptive statistics, and descriptive qualitative. Quantitative descriptive analysis techniques will make it more visible (Hanny & Qalbi, 2020; Prasetya et al., 2021). After collecting the data, a Likert scale is used to analyze it. In revising a product, qualitative data is grouped based on the results of interviews obtained, responses, suggestions, and value validity in a product using qualitative descriptive analysis techniques. In obtaining the average proportion, it is necessary to have a descriptive analysis method to test the average on trials conducted on students, both field trials or tests in small groups. Then the differential statistical analysis method is used as a test in assessing the efficacy of the product by making comparisons of the test results obtained with and without using learning videos. Before and after tests are given to students to measure their progress. The research hypothesis was then derived from an

analysis of the pre-test and post-test results to determine whether there was a difference between the two sets of results.

3. RESULT AND DISCUSSION

Results

This research seeks to arouse students' interest in learning and uses simple language, the product developed is designed as contextual-based mathematics learning videos packaged with animation and relevant supporting images. Some of the video media's contents are opening videos, basic competencies, indicators, learning objectives, character recognition, discussion material, practice questions, and closing. The following describes the basic competencies and indicators in Table 5.

Table 5. Basic Competencies and Indicators

Basic Competencies	Indicators
3.1 Explain and add and subtract two fractions with different denominators	3.1.1 Explain the procedure for adding common fractions with different denominators 3.1.2 Explain the procedure for subtracting common fractions with different denominators 3.1.3 Addition of two or more widely used fractions but with various pronunciations 3.1.4 Using various names, describe two or more common fractions 3.1.5 Solving fraction problems that appear in everyday life

The stages of the ADDIE model are used to design the development of this mathematics learning video media. There are five stages in the ADDIE model: analysis, design, development, implementation, and evaluation. The analysis phase is the first stage. According to the stages of the ADDIE model, analysis is the first action performed (Analysis). At this point, the challenges and educational requirements of students are known. Through interviews with homeroom teachers, it was found that mathematics teachers exclusively used textbooks and worksheets as learning resources. The lecture method is used to carry out learning activities so that learning moves in one direction. In this way, students are not allowed to research their understanding, which makes learning less interesting. This situation shows that the actual learning process is not good, which can impact learning outcomes. From observations and interviews, it is also known that schools already have complete learning facilities. All teachers have laptops, and schools already have LCD projectors, speakers and computers. As a result, making learning videos for use in this school is a great idea.

The second stage is the design stage, where the product is designed according to the data collected during the analysis phase. Making flowcharts to determine the direction of the video, making storyboards or storyboards that contain the video display designs made, and compiling lesson plans to plan the implementation of learning with the help of video media is part of this design stage. In addition, the script is written in a certain order to make it easier for viewers to understand the material locked in the video. Then the teacher character design was carried out, and a technical test and a validation questionnaire were made. The goal of the design phase is to create a product that meets the educational needs of teachers and students. To avoid problems during the product development stage, product planning improvements must be considered at this stage. The third stage is development, which starts with gathering information in Microsoft PowerPoint, recording sound according to video scripts, using Bandicam to record screens, editing videos, and finishing. Then make validation questionnaires, conduct media expert tests, and try out student products. This media test aims to evaluate the effectiveness of learning videos. The results of expert tests and trials are presented in detail in Table 6.

Table 6. Percentage of Learning Video Media Product Trial Results

No.	Trial Subjects	Results	Qualification
1	Design Expert Test	90%	Very good
2	Material Expert Test	92,30%	Very good
3	Learning Design Expert Test	90,90%	Very good

4	Learning Media Expert Test	91,07%	Very good
5	Individual Trial	93,94%	Very good
6	Small Group Trial	93,69%	Very good
7	Field Trials	92,42%	Very good

Based on the results of the product trials in Table 6, contextually-based mathematics learning video media was declared to have passed the validity test with a very high 90% score. It shows no need to revise how to design and construct learning videos. Then the assessment by material experts returned with a percentage of 92.30% and very good qualifications. It indicates that the finished product does not need to be revised because it is valid and can be used as is. Furthermore, "the results of the validity test conducted by learning design experts on contextual mathematics learning video media resulted in a percentage of 90.90% with very good qualifications. Products that have been created, therefore, do not require revision in order to remain valid and usable. Testing the validity of contextually-based mathematics learning video media by learning media experts resulted in a percentage of 91.07% with very good qualifications as the next result. It indicates that the finished product does not need to be revised because it is valid and can be used as is. The private trial resulted in a very good qualifying percentage of 93.94%. The finished product does not require revision to be valid and usable. The results of the small group trial showed a proportion of 93.69% with very good qualifications. In other words, the finished product does not need to be changed before it can be used. According to the field test, a proportion of 92.42% was obtained, which is a very good qualification. The finished product does not require revision to be valid and usable. According to the findings of expert tests and product trials on students, this context-based math learning video media is valid and practical to use in the learning process. Based on the context that has been made, the experts have provided some input or suggestions for improving mathematics learning video media. Table 7 lists the opinions or suggestions given by experts. Moreover, Figure 1 shows the results of making video media for contextual learning.

Table 7. Comments on Product Trials by Experts

No.	Trial Subjects	Submit Suggestions and Comments
1	Design Expert	Improve the design stages, add a logo and add a developer identity
2	Material Expert	Improve learning objectives, concept explanations, and evaluation questions on video media
3	Learning Design Expert	Clarify the line on the fraction image and add a circle to each answer
4	Learning Media Expert	Turn up the volume of the background music

Figure 1. Display of Contextual-based Learning Videos

There is an implementation in the fourth stage, using media directly in the learning process. By using the design "one group pre-test, post-test design," it is stated that before the media is used, a pre-test is first carried out to apply the media in the learning process, then students will be given a post-test to ensure the final ability of each student. . after using the learning video. Knowing the effectiveness of using learning videos is the goal of the implementation phase, which also includes the pre-test, treatment, and post-test stages. The fifth stage is the evaluation, which takes place at the end of each stage, from analysis, design, and planning through formative evaluation. The average student test score experienced an

increase when using contextual-based mathematics learning video media on fractional content. However, the summative evaluation was based on the effectiveness test results. The average pre-test score was 59, while the average post-test score was 76. As a result, it was proven that fifth-grade students' mathematical ability at SD Negeri 4 Gianyar had increased both before and after using contextual learning. Fraction material-based learning videos.

Discussion

Developing a learning media by utilizing video in mathematics contextually, especially in fraction material in fifth grade, is very useful and valid for the learning process. The ADDIE model is used in product development. Using context-based mathematics learning video content in class has many benefits and is valid. The first is the content aspect, where the contents of the learning videos are by the basic competencies, indicators and learning objectives (Islam & Kalijaga, 2019; Rahmijati MTS, 2023). In conducting an analysis related to the validation of a media, various indicators are needed, starting from language suitability, material relevance, student characteristics, basic competencies, learning materials, and learning objectives, as well as indicators in it (Maulana et al., 2019; Sukarini et al., 2021; Tri Wulandari & Adam Mudinillah, 2022). Furthermore, several aspects must be completed in making media for self-study, such as student characteristics, learning materials, and learning objectives (Awalia et al., 2019; Suseno et al., 2020).

They have very valid credentials when viewed from the media design in the contextual-based learning videos. They are also good, especially in being implemented in the learning process when considering a design. In the media itself, some designs utilize various symbols, language, colors, animations, images, etc., which are still adapted to the characteristics possessed by students. The intro video's attractiveness, the images' appropriateness to the content, and the choice of colors, fonts and musical accompaniment are all excellent qualifiers. Students find attractive visuals, such as animated images and narrators that can be heard in video learning media, interesting (Putri & Dewi, n.d.; Nasrum & Herlina, 2019). Visual media is iconic in the sense that it resembles what it depicts. As a result, using visual materials will help students remember the information being taught. Images have the power to provide young learners with visual experiences that will inspire learning and help them understand abstract ideas in simple, concrete concepts (Kustandi et al., 2021; Ula et al., 2020).

This context-based mathematics learning video gets a very high rating based on the media aspect. Because it is equipped with animated images, live teacher explanation audio, and sound effects that can attract students' attention and attract them to want to listen and pay attention to learning videos, educational videos can further encourage students to get a motivation to learn (Hapsari & Zulherman, 2021; I. A. M. A. Putri & Agustika, 2022). Then "This is supported by the findings of previous studies which state that the presentation of material using video, which is directly explained by the teacher using voice/audio, will be preferred by students and make students very enthusiastic because they can see actual events through videos or images that are shown."(Maulani et al., 2022; Ula et al., 2020). Then, through pictures, students will more easily understand the material with long and abstract descriptions. The images used in the contextual learning videos are intended to increase students' motivation and desire to learn. Students become interested and motivated in learning thanks to making contextually based mathematics learning videos. Besides being inspired by audio-visual video content, students can develop independent learning abilities (Nuritha & Tsurayya, 2021; Rahayu & El Hakim, 2021). Students can independently access contextual learning videos on their smartphones, laptops or computers. Students will gain a realistic understanding of the concepts being taught by using video media as a teaching tool, which is a distinct advantage because it indirectly encourages students to train their abilities to improve continuously and independently still gain knowledge (Made Tegeh et al., 2019; Rahayu & El Hakim, 2021).

Learning videos can further increase the value and results obtained by students in learning. In addition to inspiring and preparing students for independent learning. The discussion shows how well the video media created can be used to teach elementary school students about fractions in grade five. Using video to teach mathematics is an effective learning method" (Hasiru et al., 2021; Putra & Andriani, 2021). It is because it is effective in improving student learning outcomes, especially in the development of learning media by utilizing videos on mathematics subjects contextually which are implemented in fractional material in grade V. This finding is reinforced by the results of previous research showing that learning videos are reliable, and their creations can best promote student learning outcomes (Ilsa et al., 2020; Putra & Andriani, 2021). Contextual-based learning media itself will further encourage or motivate students so that there is a relationship with knowledge, especially in implementing it in everyday life (Aminah et al., 2022; Herliana & Anugraheni, 2020; Aswarliansyah, 2020; Buchori, 2019). This contextual-

based math learning video media has the benefit of connecting math content with things students see every day. "Videos can be watched repeatedly so students can learn on their own. The video is also equipped with material and practice questions and displays images, backgrounds, and sound effects that further increase students' motivation and interest in learning.

4. CONCLUSION

The research results are used to create video media products for learning fractions in fifth-grade elementary schools. Based on several tests carried out, especially in product trials and also validity tests, it is shown that contextually utilizing learning media in the form of video motivates students so that this media can be used practically and effectively so that it can help and also encourage students to achieve results good study, especially in mathematics.

5. REFERENCES

Abuhassna, H., Awae, F., Bayoumi, K., Alzitawi, D. U., Alsharif, A. H., & Yahaya, N. (2022). Understanding Online Learning Readiness among University Students: A Bibliometric Analysis. *International Journal of Interactive Mobile Technologies*, *16*(13), 81–94. https://doi.org/10.3991/ijim.v16i13.30605.

Aminah, A., Hairida, H., & Hartoyo, A. (2022). Penguatan Pendidikan Karakter Peserta Didik melalui Pendekatan Pembelajaran Kontekstual di Sekolah Dasar. *Jurnal Basicedu*, *6*(5), 8349–8358. https://doi.org/10.31004/basicedu.v6i5.3791.

Annisa, D. S., & Fitria, Y. (2021). Hubungan Kebiasaan Belajar dengan Hasil Belajar IPA Siswa Sekolah Dasar. *Journal of Basic Education Studies*, *4*(1), 498–508. https://ejurnalunsam.id/index.php/jbes/article/view/3211.

Anwar, S., & Anis, M. B. (2020). Pengembangan Media Pembelajaran Matematika Berbasis Adobe Flash Profesional pada Materi Sifat-Sifat Bangun Ruang. *Jurnal Pendidikan Matematika (Kudus)*, *3*(1), 99. https://doi.org/10.21043/jpm.v3i1.6940.

Asmara, A. S., Hardi, H., & Ardiyanti, Y. (2019). Contextual Learning on Mathematical Subjects to Enhance Student Motivation for Learning in Vocational High School. *JPI (Jurnal Pendidikan Indonesia)*, *8*(2), 228. https://doi.org/10.23887/jpi-undiksha.v8i2.13499.

Aswarliansyah, A. (2020). Pengembangan Lembar Kerja Siswa Berbasis Kontekstual untuk Meningkatkan Hasil Belajar Matematika di Sekolah Dasar. *Jurnal Basicedu*, *4*(4), 1134–1141. https://doi.org/10.31004/basicedu.v4i4.509.

Awalia, I., Pamungkas, A. S., & Alamsyah, T. P. (2019). Pengembangan Media Pembelajaran Animasi Powtoon pada Mata Pelajaran Matematika di Kelas IV SD. *Kreano, Jurnal Matematika Kreatif-Inovatif*, *10*(1), 49–56. https://doi.org/10.15294/kreano.v10i1.18534.

Brinus, K. S. W., Makur, A. P., & Nendi, F. (2019). Pengaruh Model Pembelajaran Kontekstual terhadap Pemahaman Konsep Matematika Siswa SMP. *Mosharafa: Jurnal Pendidikan Matematika*, *8*(2), 261–272. https://doi.org/10.31980/mosharafa.v8i2.439.

Buchori, A. (2019). Pengembangan Multimedia Interaktif Dengan Pendekatan Kontekstual Untuk Meningkatkan Pemecahan Masalah Kemampuan Matematika. *Jurnal Inovasi Teknologi Pendidikan*, *6*(1), 104–115. https://doi.org/10.21831/jitp.v6.1.20094.

Fadiana, M., & Andriani, A. (2021). Metakognisi Siswa Operasional Konkret Dalam Pemecahan Masalah Matematika. *ANARGYA: Jurnal Ilmiah Pendidikan Matematika*, *4*(1). https://doi.org/10.24176/anargya.v4i1.6067.

Fauziah, M. P., & Ninawati, M. (2022). Pengembangan Media Audio Visual (Video) Animasi Berbasis Doratoon Materi Hak dan Kewajiban Penggunaan Sumber Energi Mata Pelajaran PPKn di Sekolah Dasar. *Jurnal Basicedu*, *6*(4), 6505–6513. https://doi.org/10.31004/basicedu.v6i4.3257.

Geni, K. H. Y. W., Sudarma, I. K., & Mahadewi, L. P. P. (2020). Pengembangan Multimedia Pembelajaran Interaktif Berpendekatan CTL Pada Pembelajaran Tematik Siswa Kelas IV SD. *Jurnal Edutech Undiksha*, *8*(2), 1. https://doi.org/10.23887/jeu.v8i2.28919.

Giantara, F., & Astuti, A. (2020). Kemampuan Guru Matematika Mempertahankan Substansi Materi Melalui Proses Pembelajaran Online. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *4*(2), 787–796. https://doi.org/10.31004/cendekia.v4i2.301.

Hafizatul, K. (2020). Pemanfaatan Aplikasi Kinemaster Sebagai Media Pembelajaran Berbasis ICT. *Prosiding Seminar Nasional*, 43.

Hanny, P., & Qalbi, Z. (2020). Pemahaman Orang Tua Mengenai Konsep Dasar Bermain Di TK Witri 1 Kota Bengkulu. *Jurnal Pena PAUd*, *1*(1), 63–71.

https://ejournal.unib.ac.id/index.php/penapaud/article/view/13853/7019.
Hasiru, D., Badu, S. Q., & Uno, H. B. (2021). Media-Media Pembelajaran Efektif dalam Membantu Pembelajaran Matematika Jarak Jauh. *Jambura Journal of Mathematics Education*, *2*(2), 59–69. https://doi.org/10.34312/jmathedu.v2i2.10587.
Heald, J. B., Lengyel, M., & Wolpert, D. M. (2022). Contextual inference in learning and memory. *Trends in Cognitive Sciences*, *27*(1), 43–64. https://doi.org/10.1016/j.tics.2022.10.004.
Herliana, S., & Anugraheni, I. (2020). Pengembangan Media Pembelajaran Kereta Membaca Berbasis Kontekstual Learning Siswa Sekolah Dasar. *Jurnal BASICEDU*, *4*(2), 314–326. https://doi.org/10.31004/basicedu.v4i2.346.
Hidayat, E. I. F., Vivi Yandhari, I. A., & Alamsyah, T. P. (2020). Efektivitas Pendekatan Realistic Mathematics Education (RME) Untuk Meningkatkan Kemampuan Pemahaman Konsep Matematika Siswa Kelas V. *Jurnal Ilmiah Sekolah Dasar*, *4*(1), 106. https://doi.org/10.23887/jisd.v4i1.21103.
Hutapea, N. M., Saragih, S., & Sakur, S. (2019). Improving Mathematical Communication Skills of SMP Students Through Contextual Learning. *Journal of Physics: Conference Series*, *1351*(1). https://doi.org/10.1088/1742-6596/1351/1/012067.
Ilsa, A., F, F., & Harun, M. (2021). Pengembangan Video Pembelajaran dengan Menggunakan Aplikasi Powerdirector 18 di Sekolah Dasar. *Jurnal Basicedu*, *5*(1), 288–300. https://doi.org/10.31004/basicedu.v5i1.643.
Islam, U., & Kalijaga, N. S. (2019). Pengembangan Media Construct 2 dalam Pembelajaran Qira'ah di Madrasah Tsanawiyah Negeri 1 Yogyakarta Habibur Rohman. *Edulab: Majalah Ilmiah Laboratorium Pendidikan*, *4*(1).
Kartika, Y., Wahyuni, R., Sinaga, B., & Rajagukguk, J. (2019). Improving Math Creative Thinking Ability using Math Adventure Educational Game as an Interactive Media. *Journal of Physics: Conference Series*, *1179*(1). https://doi.org/10.1088/1742-6596/1179/1/012078.
Komang Sri Asih Arina, N., Made Citra Wibawa, I., & Putu Parmiti, D. (2021). *Validitas Video Pembelajaran Topik Jarak dan Kecepatan pada Pembelajaran Matematika SD*. *9*(2), 229–237.
Kustandi, C., Farhan, M., Zianadezdha, A., Fitri, A. K., & L, N. A. (2021). PEMANFAATAN MEDIA VISUAL dalam Tercapainya Tujuan Pembelajaran. *Akademika*, *10*(02), 291–299. https://doi.org/10.34005/akademika.v10i02.1402.
Lestari, B., & Mustadi, A. (2020). Animated video media vs comic on storytelling skills for fifth-graders: Which is more effective? *Journal for the Education of Gifted Young Scientists*, *8*(1), 167–182. https://doi.org/10.17478/jegys.664119.
Lestari, N. (2021). Pengembangan Video Pembelajaran Matematika Berbasis Model CORE Materi Bangun Ruang Bola untuk Siswa Kelas VI SD. *Indonesian Journal of Instruction*, *1*, 48–63.
Mahardita, I. G. L., & Japa, I. G. N. (2022). Video Pembelajaran Pada Materi Volume Bangun Ruang untuk Siswa Kelas V Sekolah Dasar. *Jurnal Edutech Undiksha*, *10*(1), 33–41. https://doi.org/10.23887/jeu.v10i1.46709.
Maulana, A., Sekartaji, G. T., Arthur, R., & Dewi, L. K. (2019). Pengembangan Media Video Presentasi Pada Mata Kuliah Hidrologi Di Universitas Negeri Jakarta. *Kwangsan: Jurnal Teknologi Pendidikan*, *7*(2), 170. https://doi.org/10.31800/jtp.kw.v7n2.p170--183.
Maulani, S., Nuraisyah, N., Zarina, D., Velinda, I., & Aeni, A. N. (2022). Analisis Penggunaan Video sebagai Media Pembelajaran Terpadu terhadap Motivasi Belajar Siswa. *Jurnal Pendidikan Dan Teknologi Indonesia*, *2*(1), 539–546. https://doi.org/10.52436/1.jpti.134.
Melliyanti, N. M. S., & Suniasih, N. W. (2022). Kelayakan dan Efektivitas Media Komik Berbasis Kontekstual pada Muatan IPA Materi Sumber Daya Alam. *Mimbar Ilmu*, *27*(1), 124–133. https://doi.org/10.23887/mi.v27i1.44587.
Nasrum, A., & Herlina, H. (2019). Developing Calculus Teaching Materials Based on Audio-visual. *Infinity Journal*, *8*(2), 209. https://doi.org/10.22460/infinity.v8i2.p209-218.
Nengsi, S., Zulyetti, D., & Huda, M. (2021). Pengembangan LKS Biologi Dengan Pendekatan Kontekstual Materi Sistem Ekskresi Siswa Kelas XI. *Jurnal Edukasi*, *1*(1), 1–27.
Novita, L., Sukmanasa, E., & Pratama, M. Y. (2019). Penggunaan Media Pembelajaran Video terhadap Hasil Belajar Siswa SD. *Indonesian Journal of Primary Education Penggunaan*, *3*(2), 64–72. https://ejournal.upi.edu/index.php/IJPE/article/view/22103.
Nuritha, C., & Tsurayya, A. (2021). Pengembangan Video Pembelajaran Berbantuan Geogebra untuk Meningkatkan Kemandirian Belajar Siswa. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *5*(1), 48–64. https://doi.org/10.31004/cendekia.v5i1.430.
Octavyanti, N. P. L., & Wulandari, I. G. A. A. (2021). Pengembangan Video Pembelajaran Berbasis Pendekatan Kontekstual Pada Mata Pelajaran Matematika Kelas IV SD. *Jurnal Edutech Undiksha*, *9*(1), 66–74. https://doi.org/10.23887/jeu.v9i1.32223.

Putra, A., & Andriani, M. (2021). Systematic Literature Review: Media Video Blog (Vlog) pada Pembelajaran Matematika. *Alauddin Journal of Mathematics Education*, *3*(1), 111. https://doi.org/10.24252/ajme.v3i1.17528.

Putri, I. A. M. A., & Agustika, G. N. (2022). Pemanfaatan Video Pembelajaran Berbasis Etnomatematika dalam Meningkatkan Pemahaman Konsep Bangun Datar pada Siswa Kelas IV Sekolah Dasar. *Mimbar Ilmu*, *27*(2), 279–291. https://doi.org/10.23887/mi.v27i2.50699.

Putri, L. A., & Dewi, P. S. (2020). Media Pembelajaran Menggunakan Video Atraktif pada Materi Garis Singgung Lingkaran. *MATHEMA: JURNAL PENDIDIKAN MATEMATIKA*, *2*(1), 32. https://doi.org/10.33365/jm.v2i1.568.

Rahmayani, V., & Amalia, R. (2020). Strategi Peningkatan Motivasi Siswa Dalam Pembelajaran Matematika Di Kelas. *Journal on Teacher Education*, *2*(1), 18–24. https://doi.org/10.31004/jote.v2i1.901.

Rahmijati MTS, E. N. (2023). Meningkatkan Hasil Belajar Matematika Materi Persamaan Dan Fungsi Kuadrat Melalui Penggunaan Multimedia. *Jurnal Inspirasi Pendidikan (ALFIHRIS)*, *1*(1).

Renaldi, R., Abidin, A. R., Irawan, Y., Hamid, A., & Wulansari, R. E. (2022). Contextual Based E-learning (CBE): A New Model for Online Teaching in Public Health Department for Learning During the Covid-19 Pandemic. *International Journal of Interactive Mobile Technologies*, *16*(11), 39–50. https://doi.org/10.3991/ijim.v16i11.29787.

Rosa, E., Salom, R., & Perea, M. (2022). Contextual diversity favors the learning of new words in children regardless of their comprehension skills. *Journal of Experimental Child Psychology*, *214*, 105312. https://doi.org/10.1016/j.jecp.2021.105312.

Saraswati, P. M. S., & Agustika, G. N. S. (2020). Kemampuan Berpikir Tingkat Tinggi Dalam Menyelesaikan Soal HOTS Mata Pelajaran Matematika. *Jurnal Ilmiah Sekolah Dasar Undiksha*, *4*(2). https://doi.org/10.23887/jisd.v4i2.25336.

Sołtysik-piorunkiewicz, A. (2021). *How Society 5 . 0 and Industry 4 . 0 Ideas Shape the Open Data Performance Expectancy*.

Sukarini, K., Bagus, I., & Manuaba, S. (2021). Video Animasi Pembelajaran Daring pada Mata Pelajaran IPA Kelas VI Sekolah Dasar. *Jurnal Edutech Undiksha*, *8*(1), 48–56. https://doi.org/10.23887/jeu.v9i1.32347.

Sukarini, K., & Manuaba, I. B. S. (2021). Pengembangan Video Animasi Pembelajaran Daring Pada Mata Pelajaran IPA Kelas VI Sekolah Dasar. *Jurnal Edutech Undiksha*, *9*(1), 60–68. https://doi.org/10.23887/jeu.v9i1.32347.

Sukarman, Rahayu, W., & Hakim, L. El. (2021). The Effectiveness of Mathematics E-Modules with a Contextual Approach on Geometry Matters to Improving Students' Learning Outcomes. *Jurnal Pendidikan Indonesia (JPI)*, *10*(2), 362–369. https://doi.org/10.23887/jpi-undiksha.v10i2.33530.

Sumarwati, S., Fitriyani, H., Setiaji, F. M. A., Amiruddin, M. H., & Jalil, S. A. (2020). Developing mathematics learning media based on learning using Moodle on geometry subjects to improve students' higher-order thinking skills. *International Journal of Interactive Mobile Technologies*, *14*(4), 182–191. https://doi.org/10.3991/IJIM.V14I04.12731.

Suseno, P. U., Ismail, Y., & Ismail, S. (2020). Pengembangan Media Pembelajaran Matematika Video Interaktif berbasis Multimedia. *Jambura Journal of Mathematics Education*, *1*(2), 59–74. https://doi.org/10.34312/jmathedu.v1i2.7272.

Tamu, S. D., Hulukati, E., & Djakaria, I. (2020). Pengembangan Modul dan Video Pembelajaran Matematika Persiapan Ujian Nasional pada Materi Dimensi Tiga. *Jambura Journal of Mathematics Education*, *1*(1), 21–31. https://doi.org/10.34312/jmathedu.v1i1.4558.

Tegeh, I. M., Simamora, A. H., & Dwipayana, K. (2019). Pengembangan Media Video Pembelajaran Dengan Model Pengembangan 4D Pada Mata Pelajaran Agama Hindu. *Mimbar Ilmu*, *24*(2), 158. https://doi.org/10.23887/mi.v24i2.21262.

Ula, N., Hartatik, S., Nafiah, N., & Akhwani, A. (2020). Meta-analisis Pengaruh Media Visual Terhadap Minat Belajar Siswa SD Pada Pembelajaran Matematika. *AKSIOMA : Jurnal Matematika Dan Pendidikan Matematika*, *11*(1), 82–92. https://doi.org/10.26877/aks.v11i1.6223.

Wahyuni, S. (2020). Penerapan Media Flash Card untuk Meningkatkan Hasil Belajar Tema "Kegiatanku." *Jurnal Ilmiah Sekolah Dasar*, *4*(1), 9. https://doi.org/10.23887/jisd.v4i1.23734.

Winda, R., & Dafit, F. (2021). Analisis Kesulitan Guru dalam Penggunaan Media Pembelajaran Online di Sekolah Dasar. *Jurnal Pedagogi Dan Pembelajaran*, *4*(2), 211. https://doi.org/10.23887/jp2.v4i2.38941.

Wulandari, T. J., Siagian, S., & Sibuea, A. M. (2019). Pengembangan Media Pembelajaran Dengan Aplikasi Macromedia Flash Pada Mata Pelajaran Matematika. *Jurnal Teknologi Informasi & Komunikasi Dalam Pendidikan*, *5*(2). https://doi.org/10.24114/jtikp.v5i2.12598.