A Systematic Literature Review on Video Media: Application to Mathematics Learning

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Abstract. The application of media in learning can facilitate the transfer of information. The purpose of this study was to analyze the application of video media to learning Mathematics. Described in depth the research results of the application of video media to mathematics learning, the positive impact of applying video media to mathematics learning, as well as any mathematical material that can be taught through video media. This Systematic Literature Review focuses on peer-reviewed journals and data obtained from the Mendeley database using specific criteria to analyze Video Media in Mathematics Learning from 2018-2022. There were 27 articles analyzed in this study that were indexed by Google Scholar, with several articles also indexed at SINTA, ranging from SINTA 1-6. Based on the research, through the Systematic Literature Review it was found that the application of video media in learning Mathematics can increase student activity and learning outcomes, as well as affect the ability to solve mathematical problems. There are also quite a lot of positive impacts from the application of video media in Mathematics learning, both those that have an impact on students and teachers. Mathematical material that can be packaged in video media is also quite diverse, both at the elementary level and at the upper secondary level.

Keywords: Video Media, Mathematics Learning, Learning Outcomes

1 Introduction

Mathematics is the mother of all sciences [1]. Mathematics plays an important role in the world of education [2]. Learning mathematics is a scientific discipline that can develop logic, ways of thinking, reasoning and argumentation as well as contributing to solving problems in everyday life, and also providing support in the development of science and technology [3]. Mathematics can also be defined as a science that has special characteristics and is a structured idea whose relationships are arranged logically because it contains valid evidence [4].Given the important role of mathematics in life, learning mathematics must be pursued as well as possible [5].

Learning mathematics trains students to think critically, creatively, logically and systematically [6]. The importance of learning mathematics cannot be separated from the role of mathematics in all aspects of life. Therefore, mathematics cannot be separated

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from learning [7]. In essence, mathematics lessons cover three aspects, namely product, process, and attitude aspects. The product aspect includes the concepts and principles in mathematics lessons. The process aspect includes the method or method used to obtain knowledge. Meanwhile, the attitude aspect is a scientific attitude which is a variety of beliefs, opinions, and values that must be maintained by those who study it [8].

Mathematics learning should be fun learning for students. However, in reality learning mathematics is considered a difficult lesson for most students. One of the characteristics of Mathematics is having objects that are abstract. This abstract nature causes many students to experience difficulties in learning Mathematics [9]. To respond to students' views on learning mathematics, it takes the role of educators to create fun learning mathematics. Educators are required to be creative and innovative in developing their learning [10]. One of the innovations that can be carried out is by utilizing the media to arouse the interest and motivation of students which will have an impact on students' mathematical abilities and learning outcomes [11].

Media is a tool that can be used as an intermediary from educators to students to achieve the learning objectives set [12]. Media can also make learning more interesting and fun [13]. Learning media is used to achieve goals such as making messages clear visually so that they are not too verbal [14]. Learning media is a tool that can increase the effectiveness and efficiency of teaching and learning activities. Media has a positive influence on students [15].The use of appropriate learning media in the learning and teaching process in the classroom can bring success to both teachers and students [16].With learning media, students can be motivated to take part in learning because of new things that are present in their learning activities [17].

One of the media innovations that can be applied in learning is in the form of video media. Video is an electronic media that is able to combine audio and visual technology together to produce a dynamic and interesting presentation [16].Video can be used in learning programs, because it can provide unexpected experiences to students. Additionally, videos can be combined with animations and pace settings to demonstrate changes over time [18].Learning videos can help communicate the messages conveyed so as to provide a more efficient understanding of message recipients, namely students [19].Video is the most meaningful media compared to other media such as graphics, audio and so on [20].

Several studies have been conducted in developing or testing the effectiveness of an instructional media, both to facilitate the teaching and learning process and with the aim of improving learning outcomes. Based on several studies, the results show that video is suitable for use as a learning medium. It is interesting to do a literature review related to video media in learning. The literature review in this study was limited to learning Mathematics. With this literature review, it is hoped that it can provide detailed information about the types of media that can be implemented in learning mathematics, the results of applying videos to learning, as well as the positive impacts that can be described through the application of videos to learning.

2 Method

This study uses the systematic literature review (SLR) method which aims to identify, review, and evaluate all relevant research so as to answer a research question set [21]. This study consisted of several stages, namely formulation of research questions, literature search, determination of inclusion and exclusion criteria, literature selection, data presentation, data processing and drawing conclusions.

The first is the submission of several questions to analyze each article obtained. The question is, what are the results of applying video media to learning mathematics? (PP1). What are the positive impacts that can be obtained from the application of video media in learning Mathematics? (PP2). What material can be packaged through video media in Mathematics learning? (PP3). What research design is used to examine the application of video media in mathematics learning? (PP4). Second, a literature search was conducted on the database Google Scholar using the Mendeley application. The keywords used are "video media in learning mathematics" by limiting articles from 2018 to 2022. Third, the inclusion criteria used in the search for literature studies include studies related to video as a learning medium for early childhood students, elementary school students, first-level students, middle-level students, students at the secondary level. vocational and college students. The research analyzed is research that is published online, which is minimally indexed by Google Scholar. Research articles which are also included in the category of accredited journals for Sinta 1-6, are a priority for analysis. Fourth, the literature obtained was selected and analyzed based on inclusion and exclusion criteria. Obtained data related to keywords, namely as many as 125 articles. The articles were selected based on inclusion and exclusion criteria into 27 articles.

3 Result and Discussion

3.1 Results

From about 125 related articles, there are 27 articles that are in accordance with the research topic, namely video media on Mathematics learning. The 27 articles were obtained from publication searches starting from 2018-2022. Data findings, presented in Table 1.

Table 1. Research Regarding Video Media in Mathematics Learning

Writer	Title	Results
[22]	The effectiveness of using video-based learning media on students' understanding of mathematical concepts	There are differences in effectiveness in the use of video-based learning media with conventional learning, on students' understanding of mathematical concepts.
[23]	Application of Video Tutorial Assisted Mathematics Learning to Increase Interest and Achievement in	The application of video tutorial-assisted mathematics learning can increase student interest and learning achievement.

Writer	Title	Results
	Learning Mathematics for Grade VII Students of SMP Negeri 2 Sawan	
[24]	The Effect of Using Learning Video Media on the Spatial Intelligence of Elementary School Students' Space Building Materials.	The use of instructional video media is proven to have an effect on spatial intelligence in geometric material.
[25]	Utilization of Geogebra-Based Learning Videos to Improve the Ability to Understand Mathematical Concepts for Vocational High School Students	The ability to understand mathematical concepts of students who use Geogebra-based learning videos is better than students who learn with conventional learning.
[26]	Development of Mathematics Learning Videos in Increasing Student Interest and Achievement in the Material of Linear Equations of Two Variables	Learning media on the material of two-variable linear equations in the form of learning videos that have been developed are stated to be valid, practical, and effective.
[27]	Development of Mathematics Learning Videos through the Flipped Classroom Learning Model in Vocational High Schools	Mathematics learning video media through learning models *Flipped Classroom* valid, practical, and effective.
[28]	The Effect of Youtube Video Media on Mathematics Learning Achievement in Class X Students of SMK Negeri 2 Sukoharjo Academic Year 2017/2018	Video learning media*youtube* effect on students' mathematics learning achievement.
[29]	Development of Mathematics Learning Media Videos with the Help of Powtoon	The Powtoon-assisted learning video media on the material on the System of Linear Equations of Two Variables is valid and effective.
[30]	Development of Animated Video Learning Media to Improve High-Level Thinking Skills and Learning Outcomes in Elementary Schools	By using the animated video media that was developed, it is significantly effective in improving higher-order thinking skills and learning outcomes.
[31]	The Effectiveness of Using Video Tutorial Media as a Support for Mathematics Learning on Learning Achievement in Class X Students of SMK Negeri 1 Baubau	The results of the study show that student achievement using video tutorial learning media can increase, and the use of video tutorials as a support for learning mathematics is effective on student achievement.
[32]	Understanding Mathematical Concepts through Youtube Media with an Ethnomatematics Approach	There are differences in abilitiesunderstanding of concepts between students taught by YouTube-based learning using Corel Videostudio X10 with an ethnomathematics approach and conventional learning after controlling for students' initial abilities.
[33]	The Effect of Using Video Animation Media on Student Responses in Mathematics Learning on Integer Operation Material	1. The effect of animated video media on student responses using animated video media in learning mathematics on integer operations material is very good, seen from the observed data obtained, namely 81.25%.

Writer	Title	Results
		2. Student response to animated video media in learning mathematics on integer operations material is very high.
[34]	Analysis of Understanding Mathematical Concepts Using Video as Media Learning Mathematics in Class III C SDN Dewi Sartika CBM	Students' understanding of mathematical concepts is quite high, namely on indicators restating a concept and indicators that are poorly understood by students, namely indicators of developing necessary or sufficient conditions for a concept.
[35]	Learning Media Using Attractive Videos on Material Tangent Circles	The result of this research is a product in the form of a learning video about the concept of a tangent to a circle using Microsoft*PowerPoint* and*Windows Movie Maker version* 12 that have been tested on students.
[36]	Development of Mathematics Learning Modules and Videos for National Examination Preparation on Three Dimension Material	The results of the study reveal the average value of teacher and student responses, indicating a very good category, so that modules and videos can be said to meet practicality criteria. This shows that the learning modules and videos fulfill valid and practical aspects so that they are suitable for use in learning.
[37]	Development of Animated Video Learning Media Material Volume Build Space for Class V Elementary School	The results of the study show that animated video media is practical and feasible to use. Student responses showed a positive response with the percentage of scores obtained based on student response questionnaires of 90%.
[38]	Optimization of Learning in the Network (Online) with Interactive Video Learning Media for Students' Mathematical Understanding	Based on an analysis of the literature from several journals, learning mathematics using media in the form of interactive videos is more optimal and effective in increasing students' mathematical understanding compared to learning without interactive video media, especially when online learning takes place.
[39]	Improving Mathematics Learning Outcomes in Speed Materials Using Interactive Learning Video Media in Elementary Schools	The use of interactive learning video media can improve mathematics learning outcomes in speed material.
[40]	Development of Learning Videos Based on Contextual Approaches in Mathematics Class IV Elementary School	Learning video media based on a contextual approach to mathematics is feasible to use. The implication of this research is that the developed media can be used by teachers in increasing students' understanding of mathematics.
[41]	Description of Geogebra Video-Assisted Mathematics Learning and Students' Mathematical Understanding on Quadratic Function Material	The results of the students' mathematical understanding before and after using the Geogebra video media on quadratic function material showed a significant difference from the initial mathematical understanding

Writer	Title	Results
		of 9% to 45%. This means that 45% of students meet all indicators of mathematical understanding.
[42]	The effectiveness of kine master video media on student mathematics learning outcomes online	The results of the research show that video-based media*KineMaster*improve student learning outcomes.
[43]	The Effect of Using Video Media on Mathematics Learning Flat Shape Material	The findings of this study indicate that video media can be used to improve student learning outcomes.
[44]	Video Media for Ethnomatematics-Based Mathematics Learning in the Content of Introducing Flat Figures	The ethnomathematics-based mathematics learning video media in the introduction of flat shapes is suitable for use in learning and can improve student learning outcomes. The implication of this research is that students can learn mathematics using ethnomathematics-based learning videos to be able to increase motivation and carry out meaningful learning activities.
[45]	Development of Animated Video Media Content for Class III Elementary School Mathematics	Animated videos are suitable for use by teachers and students. The results of the practicality assessment carried out by teachers and third grade students obtained an average score of 90.9% in the very practical category, meaning that animated videos make it easier for teachers and students in learning. The results of the effectiveness of animated video media are supported by the assessment of student learning outcomes in the form of test questions with an average percentage of classical completeness scores of 81.25% in the very effective category, meaning that animated videos can help students achieve learning objectives.
[46]	The Effect of Using Learning Video Media Through a Scientific Approach to Students' Mathematics Learning Outcomes	There is a significant influence on the use of instructional video media through the approach *scientific* on student learning outcomes in mathematics, meaning the use of learning video media through approaches *scientific* this gives a significant positive effect.
[47]	Development of Video-Based Learning Media for Mathematics at Tri Dharma 2 Vocational School, Bogor	The research results show that overall, the results of the feasibility assessment of the learning design expert trial on video media is 76.19% (feasible). Then the results of the feasibility assessment of the media expert trial on video media were 74.66% (feasible). Furthermore, the results of the feasibility assessment of the material expert trial on video media were 82.5% (very feasible), then the results of the feasibility assessment of individual trials of video media were

Writer	Title	Results
		81.428% (decent) and the results of the feasibility assessment of individual trials of video media were 85, 71% (very decent).
[48]	Development of Powtoon-Based Mathematics Learning Videos Using Ethnomatematics Concepts in Elementary Schools	1. Kthe quality of learning videos seen from the aspect of validity is included in the valid category with an average score of 0.90; 2. The quality of learning videos seen from the practical aspect is categorized as practical with an average score of 99.06; 3. Learning videos have a potential effect on student learning outcomes.

Of the 27 articles that have been compiled by researchers, it is also carried out regarding the positive impact of applying video media to learning Mathematics. A description of the positive impact of implementing video on Mathematics learning can be observed in Table 2.

Table 2. The Positive Impact of Application of Video on Learning Mathematics

Writer	The Positive Influence of Video Media on Mathematics Learning
[22]	Students prefer the learning process, and understand more about the material presented.
[23]	1. Learning is more interesting 2. Learning becomes more interactive 3. The required length of learning time can be shortened 4. The quality of learning outcomes increases 5. Lessons can be provided when and where needed 6. The positive attitude of students towards what they learn can be improved 7. The role of the teacher can change in a more positive direction, the teacher's burden for repeated explanations regarding the content of the lesson can be reduced or even eliminated so that the teacher can focus on other important aspects in the teaching and learning process
[24]	The spatial ability of students has increased
[25]	1. save time to draw on the blackboard and do calculations, 2. help maximize the efficiency of the learning process 3. make students actively participate in the process of building knowledge 4. change exploration static becomes dynamic in learning geometry.
[26]	Can attract students' attention in learning
[27]	Learning outcomes increase
[28]	Learning outcomes increase
[29]	Not outlined.
[30]	Learning outcomes increase
[31]	Improve learning achievement
[32]	Improve the ability to understand the concept
[33]	Help understand the material, as well as increase student enthusiasm when learning
[34]	Not outlined.
[35]	Better understand the material and more interested in learning.

Writer	The Positive Influence of Video Media on Mathematics Learning
[36]	By collaborating with modules, videos can increase understanding of mathematical concepts.
[37]	1. Able to increase student enthusiasm in learning mathematics 2. Changing students' views of mathematics 3. Facilitate in embedding the concept of the material being studied 4. As an alternative tool for teachers in delivering learning material 5. Efficient 6. It can be used under any circumstances and at any time.
[38]	Optimizing online learning can improve students' mathematical understanding skills and improve their learning achievement.
[39]	Improve learning outcomes
[40]	Increase student enthusiasm in learning
[41]	Providing opportunities or effective choices in creating and innovating learning online possible interactive students in trying / exploring mathematical concepts
[42]	1. Improve learning outcomes 2. Reducing student boredom in learning and making it easier for students to understand mathematical material that is difficult to understand conventionally 3. Increase the number of students' completeness in learning outcomes and reduce the number of students who are remedial 4. Easier to understand explanations that may be difficult to understand visually 5. Make it easy for teachers to adjust the material to be provided 6. Attract students' attention in understanding the material
[43]	Improve learning outcomes
[44]	Students can study independently
[45]	Improve learning outcomes
[46]	Improve learning outcomes
[47]	Not outlined.
[48]	Learners more easily understand lessons and make it easier for teachers to convey learning

Based on the description of the positive impact of video media on mathematics learning that has been described in Table 2, we can understand that the application of video to mathematics learning has a lot of positive impacts, both stand-alone videos and in collaboration with others, such as certain modules or learning models. This of course confirms that video media is truly effective in helping the mathematics learning process.

Of the 27 articles discussed in the research, each application is used in different Mathematics material. This can be information regarding the selection of video types based on the material to be taught. A description of the Mathematical material packaged in video media can be observed in Table 3.

Table 3. Mathematical Material in Learning Video Media

Writer	Class	Mathematics Material
[22]	VIII	Build a flat side room

Writer	Class	Mathematics Material
[23]	VIII	Not outlined.
[24]	IN	Geometry
[25]	XI	Geometry
[26]	VIII	linear equation
[27]	XI	Arithmetic sequences and series
[28]	X	Trigonometry
[29]	VIII	System of linear equations of two variables
[30]	I	thematic
[31]	X	Not outlined.
[32]	X	Not outlined.
[33]	VII	Round Number Operations
[34]	III	Perimeter and Area of squares and rectangles
[35]	VIII	Circle Tangents
[36]	XII	Dimension three
[37]	IN	Space Build Volume
[38]	Not outlined.	Not outlined.
[39]	IN	Speed
[40]	IV	Angle measurement
[41]	XI	Quadratic Function
[42]	XII	Opportunity
[43]	IN	Two-dimentional figure
[44]	I	Two-dimentional figure
[45]	III	Fraction
[46]	XI	Not outlined.
[47]	XI	Circle equation
[48]	IV	Two-dimentional figure

3.2 Discussion

Learning media in the form of videos can have many positive impacts when learning mathematics [37] [42]. These positive impacts include being able to increase student enthusiasm in learning mathematics, changing students' views of mathematics, making it easier to in still concepts of the material being studied, various alternative teacher tools in conveying learning material, efficient, can be used in any circumstances and at any time. improve learning outcomes, reduce student boredom in learning and make it easier for students to understand mathematical material that is difficult to understand conventionally, increase the number of students' completeness in learning outcomes and reduce the number of students who are remedial, easier to understand explanations that may be difficult to understand visually, make it easier for teachers to adjust the material to be provided, as well as attract students' attention in understanding the material.

The descriptions of various research results also provide positive statements, starting from the effectiveness of video media, the creation of video media with proven quality, and the improvement of learning conditions through video media. Based on the in-depth analysis conducted on each article, no negative impact was found from the application of video in learning Mathematics, this information is important that the use of video media can be an alternative to help teach Mathematics in class. Videos nowadays don't have to be made independently by teachers, but now access to video media is much

easier, one of which is being able to search for various kinds of videos on Youtube. Of course, this can summarize teacher preparation in teaching because videos are available on Youtube. However, of course the selection of videos on Youtube must still be adjusted to the needs, suitability of the material, suitability of the level of education, as well as various other complementary criteria as video selection criteria.

A learning activity that is supported by complete preparation will certainly maximize the learning activities carried out. The teacher must continue and always add insight regarding the creation of interesting and fun learning. However, of course, maximum absorption of material must also be considered because in learning mathematics, this is one of the main things. Good learning is not only interesting and fun, but also learning objectives that have been predetermined can be achieved optimally.

Not all teachers are proficient at becoming teachers right away, of course there are those who require repeated experience in teaching. Several times at the beginning, you might experience a lot of mistakes, but repetition which is continuously evaluated and corrected, will improve the quality of teaching for the better. Thus, being a good teacher actually participates in learning with students, of course, not just learning about the material being taught, but learning to continuously evaluate yourself, what is lacking in teaching. Students say learning Mathematics is difficult, in fact it is not entirely the student's fault, but there is a big role for a teacher in helping students' understanding of a mathematical material being studied. If the teacher is able to find ways of learning so that students can understand the mathematics material being taught, then there will never again be students who will say that mathematics is difficult. This is because they have found the right study partner, namely their teacher.

Video media is one of the many types of videos that teachers can use to help the learning process. The impact of the Covid-19 pandemic has resulted in the creation of lots of learning videos that students can use to learn. During the Covid-19 pandemic, with face-to-face restrictions, video media can be an alternative for teaching. Without having to meet face to face, the teacher still easily conveys learning material to the fullest. This certainly reinforces that the presence of video media provides great benefits to learning.

4 Conclusion

Based on the research, through the Systematic Literature Review it was found that the application of video media in learning Mathematics can increase student activity and learning outcomes, and have an effect on mathematical problem solving abilities. There are also quite a lot of positive impacts from the application of video media in Mathematics learning, both those that have an impact on students and teachers. Mathematical material that can be packaged in video media is also quite diverse, both at the elementary level and at the upper secondary level.

References

1. W. Sinaga, B. H. Parhusip, R. Tarigan, and S. Sitepu, "Perkembangan Matematika Dalam Filsafat Dan Aliran Formalisme Yang Terkandung Dalam Filsafat Matematika," *Sepren J. Math. Educ. Appl.*, vol. 2, no. 2, pp. 17–22, 2021, doi: 10.36655/sepren.v2i2.508.
2. F. Priyatna and W. Wiguna, "Mobile Game Pembelajaran Matematika Dasar Menggunakan Construct 2 di SDN Sasaksaat," in *eProsiding Teknik Informatika (PROTEKTIF)*, 2021, vol. 1, no. 1, pp. 218–227.
3. H. T. Laia and D. Harefa, "Hubungan Kemampuan Pemecahan Masalah Matematis dengan Kemampuan Komunikasi Matematik Siswa," *Aksara J. Ilmu Pendidik. Nonform.*, vol. 7, no. 2, pp. 463–474, 2021, doi: 10.37905/aksara.7.2.463-474.2021.
4. A. N. Fadilla, A. S. Relawati, and N. Ratnaningsih, "Problematika Pembelajaran Daring Masa Pandemi Covid-19," *J. Jendela Pendidik.*, vol. 1, no. 2, pp. 48–60, 2021, doi: 10.32505/tarbawi.v8i2.2562.
5. S. T. Putri and D. R. Munandar, "Analisis Kendala Pembelajaran Matematika Berbasis Online (E-Learning) Pada Masa Pandemi COVID-19," *J. Absis J. Pendidik. Mat. dan Mat.*, vol. 3, no. 2, pp. 320–327, 2021, doi: 10.30606/absis.v3i2.811.
6. C. Suryaningsih and N. R. Dewi, "Kajian Teori: Pengembangan Bahan Ajar Berbasis Saintifik untuk Meningkatkan Kemampuan Berpikir Kritis Peserta Didik Melalui Model Preprospec Berbantuan TIK pada Materi Barisan dan Deret," in *PRISMA, Prosiding Seminar Nasional Matematika*, 2021, vol. 4, pp. 119–128, [Online]. Available: https://journal.unnes.ac.id/sju/index.php/prisma/article/view/44933.
7. R. Siswondo and L. Agustina, "Penerapan Strategi Pembelajaran Ekspositori untuk Mencapai Tujuan Pembelajaran Matematika," *Himpun. J. Ilm. Mhs. Pendidik. Mat.*, vol. 1, no. 1, pp. 33–40, 2021, [Online]. Available: http://jim.unindra.ac.id/index.php/himpunan/article/view/3155.
8. S. Afsari, I. Safitri, S. K. Harahap, and L. S. Munthe, "Systematic Literature Review: Efektivitas Pendekatan Pendidikan Matematika Realistik Pada Pembelajaran Matematika," *Indones. J. Intellect. Publ.*, vol. 1, no. 3, pp. 189–197, 2021, doi: 10.51577/ijipublication.v1i3.117.
9. Y. Anggraini, "Analisis Persiapan Guru dalam Pembelajaran Matematika di Sekolah Dasar," *J. Basicedu*, vol. 5, no. 4, pp. 2415–2422, 2021, [Online]. Available: https://jbasic.org/index.php/basicedu/article/view/1241.
10. R. Rahayu, S. Iskandar, and Y. Abidin, "Inovasi Pembelajaran Abad 21 dan Penerapannya di Indonesia," *J. Basicedu*, vol. 6, no. 2, pp. 2099–2104, 2022, doi: 10.31004/basicedu.v6i2.2082.
11. A. Yulianto, S. Sisworo, and E. Hidayanto, "Pembelajaran Matematika Berbantuan Video Pembelajaran untuk Meningkatkan Motivasi dan Hasil Belajar Peserta Didik," *Mosharafa J. Pendidik. Mat.*, vol. 11, no. 3, pp. 403–414, 2022, doi: 10.31980/mosharafa.v11i3.1396.
12. H. M. Khoir, R. E. Murtinugraha, and S. Musalamah, "Pengembangan Media Pembelajaran E-Learning Berbasis Moodle Pada Mata Kuliah Metodologi Penelitian," *J. PenSil*, vol. 9, no. 1, pp. 54–60, 2020, doi: 10.21009/jpensil.v9i1.13453.
13. F. Firmadani, "Media Pembelajaran Berbasis Teknologi Sebagai Inovasi Pembelajaran Era Revolusi Industri 4.0," in *Prosiding Konferensi Pendidikan Nasional*, 2020, vol. 2, no. 1, pp. 93–97, [Online]. Available: http://ejurnal.mercubuana-yogya.ac.id/index.php/Prosiding_KoPeN/article/view/1084/660.

14. J. Monica and D. Fitriawati, "Efektivitas Penggunaan Aplikasi Zoom Sebagai Media Pembelajaran Online Pada Mahasiswa Saat Pandemi Covid-19," *J. Communio*, vol. 9, no. 2, pp. 1630–1640, 2020, doi: https://doi.org/10.35508/jikom.v9i2.2416.
15. Hanisah, Y. Irhasyuarna, and R. Yulinda, "Pengembangan Media Pembelajaran Interaktif menggunakan Ispring suite 10 pada Materi Reproduksi Tumbuhan untuk Mengukur Hasil Belajar," *JUPEIS J. Pendidik. dan Ilmu Sos.*, vol. 1, no. 3, pp. 6–16, 2022, doi: 10.55784/jupeis.vol1.iss3.68.
16. F. Yuanta, "Pengembangan Media Video Pembelajaran Ilmu Pengetahuan Sosial pada Siswa Sekolah Dasar," *Trapsila J. Pendidik. Dasar*, vol. 1, no. 2, pp. 91–100, 2020, doi: 10.30742/tpd.v1i02.816.
17. M. Ridha, Firman, and Desyandri, "Efektifitas Penggunaan Media Video pada Pembelajaran Tematik Terpadu di Sekolah Dasar Saat Pandemi Covid-19," *J. Pendidik. Tambusai*, vol. 5, no. 1, pp. 154–162, 2021, [Online]. Available: https://jptam.org/index.php/jptam/article/view/925.
18. G. Prananda, A. Wardana, and Yuliadarmianti, "Pengembangan Media Video Pembelajaran Tema 6 Subtema 2 Untuk Siswa Kelas SD Negeri 17 Pasar Masurai 1," *J. Dharma PGSD*, vol. 1, no. 1, pp. 38–45, 2021, [Online]. Available: http://ejournal.undhari.ac.id/index.php/judha/article/view/104.
19. L. Qurrotaini, T. W. Sari, V. H. Sundi, and L. Nurmalia, "Efektivitas Penggunaan Media Video Berbasis Powtoon dalam Pembelajaran Daring," in *Prosiding Seminar Nasional Penelitian LPPM UMJ*, 2020, vol. 1, pp. 1–7, [Online]. Available: https://jurnal.umj.ac.id/index.php/semnaslit/article/view/7869.
20. D. P. Parlindungan, G. P. Mahardika, and D. Yulinar, "Efektivitas Media Pembelajaran Berbasis Video Pembelajaran dalam Pembelajaran Jarak Jauh (PJJ) di SD Islam An-Nuriyah," in *Prosiding Seminar Nasional Penelitian LPPM UMJ*, 2020, pp. 1–8, [Online]. Available: http://jurnal.umj.ac.id/index.php/semnaslit%0AE-ISSN:
21. E. Triandini, S. Jayanatha, A. Indrawan, G. Werla Putra, and B. Iswara, "Systematic Literature Review Method for Identifying Platforms and Methods for Information System Development in Indonesia," *Indones. J. Inf. Syst.*, vol. 1, no. 2, pp. 63–77, 2019, doi: //doi.org/10.24002/ijis.v1i2.1916.
22. Y. Gusmania and T. Wulandari, "Efektivitas penggunaan media pembelajaran berbasis video terhadap pemahaman konsep matematis siswa," *Pythagoras*, vol. 7, no. 1, pp. 61–67, 2018, doi: 10.33373/PYTHAGORAS.V7I1.1196.
23. I. P. A. D. Prayatna, I. G. P. Sudiarta, and I. N. Gita, "Penerapan Pembelajaran Matematika Berbantuan Video Tutorial Untuk Meningkatkan Minat Dan Prestasi Belajar Matematika Siswa Kelas Viiid Smp Negeri 2 Sawan," *J. Pendidik. Mat. Undiksha*, vol. 9, no. 2, pp. 40–51, 2018, doi: 10.23887/jjpm.v9i2.19894.
24. S. V. Kusumawardani, "Pengaruh Penggunaan Media Video Pembelajaran Terhadap Kecerdasan Spasial Materi Bangun Ruang Siswa Sekolah Dasar.," *E-Jurnal Prodi Teknol. Pendidik.*, vol. 7, no. 6, pp. 583–590, 2018.
25. E. Nurdin, A. Ma'aruf, Z. Amir, R. Risnawati, N. Noviarni, and M. P. Azmi, "Pemanfaatan video pembelajaran berbasis Geogebra untuk meningkatkan kemampuan pemahaman konsep matematis siswa SMK," *J. Ris. Pendidik. Mat.*, vol. 6, no. 1, pp. 87–98, 2019, doi: 10.21831/jrpm.v6i1.18421.
26. Saman, Ma'rufi, and A. Tiro, "Pengembangan Video Pembelajaran Matematikamatematika Dalam Meningkatkan Minat Dan Prestasi Belajar Siswa Pada Materi Persamaan Linear Dua Variabel," *Pedagogy*, vol. 4, no. 1, pp. 1–12, 2019, doi: http://dx.doi.org/10.30605/pedagogy.v4i1.1426.

27. Y. A. Yanti, A. Buchori, and A. A. Nugroho, "Pengembangan Video Pembelajaran Matematika melalui Model Pembelajaran Flipped Classroom di Sekolah Menengah Kejuruan," *Imajiner J. Mat. dan Pendidik. Mat.*, vol. 1, no. 6, pp. 381–392, 2019, doi: 10.26877/imajiner.v1i6.4868.
28. R. Pambudi, A. Afghohani, and I. Farahsanti, "Pengaruh Media Video Youtube Terhadap Prestasi Belajar Matematika Pada Siswa Kelas X SMK Negeri 2 Sukoharjo Tahun Ajaran 2017 / 2018," *J. Pendidik.*, vol. 28, no. 2, pp. 175–182, 2018, doi: https://doi.org/10.32585/jp.v28i2.345.
29. R. Y. Astika, B. S. Anggoro, and S. Andriani, "Pengembangan Video Media Pembelajaran Matematika Dengan Bantuan Powtoon," *J. Pemikir. dan Penelit. Pendidik. Mat.*, vol. 2, no. 2, pp. 85–96, 2019, doi: 10.36765/jp3m.v2i2.29.
30. E. Y. Andriani, "Pengembangan Media Pembelajaran Video Animasi untuk Meningkatkan Kemampuam Berikir tingkat tinggi dan hasil Belajar di Sekolah Dasar," *J. Teknol. Pendidik. dan Pembelajaran*, vol. 6, no. 1, pp. 31–36, 2019.
31. R. Rahmatia, A. Iriana, and W. Sarido, "Efektivitas Penggunaan Media Video Tutorial Sebagai Pendukung Pembelajaran Matematika terhadap Prestasi Belajar pada Siswa Kelas X SMK Negeri 1 Baubau," *J. Akad. Pendidik. Mat.*, vol. 5, no. 2, pp. 90–93, 2019, doi: 10.55340/japm.v5i2.178.
32. K. U. Z. Nugroho, W. Widada, Zamzaili, and D. Herawaty, "Pemahaman Konsep Matematika melalui Media Youtube dengan Pendekatan Etnomatematika," *J. Pendidik. Mat. raflesia*, vol. 4, no. 1, pp. 96–106, 2019, doi: https://doi.org/10.33369/jpmr.v4i1.8953.
33. P. N. Sri Hariati, L. Rohanita, and I. Safitri, "Pengaruh Penggunaan Media Video Animasi Terhadap Respon Siswa Dalam Pembelajaran Matematika Pada Materi Operasi Bilangan Bulat," *J. Pembelajaran Dan Mat. Sigma*, vol. 6, no. 1, pp. 18–22, 2020, doi: 10.36987/jpms.v6i1.1657.
34. V. Salsabila, A. R. Amalia, and L. H. Malula, "Analisis Pemahaman Konsep Matematika Menggunakan Media Video Pembelajaran Matematika Di Kelas III C SDN Dewi Sartika CBM," *Didakt. J. Ilm. PGSD STKIP Subang*, vol. 6, no. 1, pp. 148–154, 2020, doi: 10.36989/didaktik.v6i1.123.
35. L. A. Putri and P. S. Dewi, "Media Pembelajaran Menggunakan Video Atraktif pada Materi Garis Singgung Lingkaran," *Mathema J. Pendidik. Mat.*, vol. 2, no. 1, pp. 32–39, 2020, doi: 10.33365/jm.v2i1.568.
36. S. D. Tamu, E. Hulukati, and I. Djakaria, "Pengembangan Modul dan Video Pembelajaran Matematika Persiapan Ujian Nasional pada Materi Dimensi Tiga," *Jambura J. Math. Educ.*, vol. 1, no. 1, pp. 21–31, 2020, doi: 10.34312/jmathedu.v1i1.4558.
37. D. K. Mashuri and Budiyono, "Pengembangan Media Pembelajaran Video Animasi Materi Volume Bangun Ruang untuk SD Kelas V," *Jpgsd*, vol. 8, no. 5, pp. 893–903, 2020.
38. D. Fakhriyana and S. Riayah, "Optimalisasi Pembelajaran dalam Jaringan (Daring) dengan Media Pembelajaran Video Interaktif Terhadap Pemahaman Matematis Siswa," *J. Pendidik. Mat.*, vol. 4, no. 1, pp. 19–30, 2021, doi: 10.21043/jmtk.v4i1.10147.
39. I. Biassari, K. E. Putri, and S. Kholifah, "Peningkatan Hasil Belajar Matematika pada Materi Kecepatan Menggunakan Media Video Pembelajaran Interaktif di Sekolah Dasar," *J. Basicedu*, vol. 5, no. 4, pp. 2322–2329, 2021, doi: https://doi.org/10.31004/basicedu.v5i4.1139.
40. N. P. L. Octavyanti and I. G. A. A. Wulandari, "Pengembangan Video Pembelajaran Berbasis Pendekatan Kontekstual Pada Mata Pelajaran Matematika Kelas IV SD," *J. Edutech Undiksha*, vol. 9, no. 1, pp. 66–74, 2021, doi: 10.23887/jeu.v9i1.32223.
41. A. Rochim, T. Herawati, and N. Nurwiani, "Deskripsi Pembelajaran Matematika Berbantuan Video Geogebra dan Pemahaman Matematis Siswa pada Materi Fungsi Kuadrat,"

Mosharafa J. Pendidik. Mat., vol. 10, no. 2, pp. 269–280, 2021, doi: 10.31980/mosharafa.v10i2.996.
42. S. Wulandari and I. Fitria Rahma, "Efektivitas media video kine master terhadap hasil belajar matematika siswa secara daring," *J. Anal.*, vol. 7, no. 1, pp. 33–45, 2021, doi: 10.15575/ja.v7i1.11956.
43. J. M. Sumilat, D. Kumolontang, and Y. Rompah, "Pengaruh Penggunaan Media Video pada Pembelajaran Matematika Materi Bangun Datar," *Edukatif J. Ilmu Pendidik.*, vol. 4, no. 5, pp. 7159–7167, 2022, doi: https://doi.org/10.31004/edukatif.v4i5.4017.
44. P. D. P. Dewi and N. W. Suniasih, "Media Video Pembelajaran Matematika Berbasis Etnomatematika pada Muatan Materi Pengenalan Bangun Datar," *J. Edutech Undiksha*, vol. 10, no. 1, pp. 156–166, 2022, doi: https://doi.org/10.23887/jeu.v10i1.44775.
45. V. Anggraini, G. Prananda, and A. E. Hader, "Pengembangan Media Video Animasi Muatan Pelajaran Matematika Kelas III Sekolah Dasar," *J. Ika Ikat. Alumni Pgsd Unars*, vol. 10, no. 2, pp. 54–62, 2021.
46. R. Angraeni, A. Husniati, A. Gaffar, and Z. Mustapa. R, "Pengaruh Penggunaan Media Video Pembelajaran Melalui Pendekatan Scientific Terhadap Hasil Belajar Matematika Siswa," *Delta-Pi J. Mat. dan Pendidik. Mat.*, vol. 11, no. 1, pp. 30–48, 2022, doi: 10.33387/dpi.v11i1.4148.
47. N. Aulia and M. M. Nurzaelani, "Pengembangan Media Pembelajaran Berbasis Video Untuk Mata Pelajaran Matematika Di SMK Tri Dharma 2 Bogor," *J. Edukha*, vol. 3, no. 1, pp. 128–143, 2022, doi: http://dx.doi.org/10.32832/edukha.v3i1.7228.
48. R. D. Novera, S. Sukasno, and A. Sofiarini, "Pengembangan Video Pembelajaran Matematika Berbasis Powtoon Menggunakan Konsep Etnomatematika di Sekolah Dasar," *J. Basicedu*, vol. 6, no. 4, pp. 7161–7173, 2022, doi: 10.31004/basicedu.v6i4.3404.