



Development of Comic Media on Changing form of Objects Material for Class IV SD Negeri 11 Betung

Tri Dinanti¹, Sukardi², Mega Kusuma Putri³

Education School Teacher Elementary School PGRI University Palembang¹

History Education PGRI University Palembang²

Geography Education PGRI University Palembang³

* Corresponding Author. E-mail: tridinanti93@gmail.com¹ sukardipgri12@gmail.com²
megakusumaputri@univpgri-palembang.ac.id³

Received: 10/08/2024

Accepted: 10/09/2024

Published: 01/10/2024

Abstrak

Comics mean something interesting. One of the media developed by utilizing sophisticated technology is comic learning media. Developing comics in the right way and can produce comics according to the needs and characteristics of students. Comics are images that have an interesting storyline, which are easy to understand, and can make it easy for them to understand difficult material, The ADDIE development model (Analysis, Design, Development, Implementation, Evaluation) is a simple development model with a systematic research system that aims to formulate, improve, develop and produce a particular product. Data collection techniques have various ways of observation that have their own advantages depending on the purpose of the research, the source of the available data and the core context of the research being conducted. Interviews, Questionnaires Documentation Data analysis techniques Validity data analysis, practicality data. Potential effect analysis The results of the development of comic media on the material of changes in the form of objects for grade IV students in elementary schools are stated to be practical based on the results obtained through student response questionnaires with an average percentage value of 95% at the one-to-one stage, an average percentage value of 91% at the small group stage, and an average percentage value of 95.8% at the field test stage with very practical criteria. The results of the development of comic media on the material of changes in the form of objects for grade IV students in elementary schools are stated to be effective based on the results obtained through learning outcome tests that can be seen based on increasing student learning outcomes based on the average value of the pre-test is 32% and from the post-test is 86% with very effective criteria, this means that learning using this comic media has a potential effect so that it can be used in the learning process.

Keywords: Comics, Learning, and Form of Objects

Abstrak

Komik berarti sesuatu yang menarik. Salah satu media yang dikembangkan dengan memanfaatkan kecanggihan teknologi yaitu media pembelajaran komik. Mengembangkan komik dengan cara yang tepat dan dapat menghasilkan komik sesuai dengan kebutuhan dan karakteristik peserta didik. Komik merupakan gambar yang memiliki alur cerita yang menarik, yang mudah dimengerti, dan dapat membuat mereka mudah memahami materi yang sulit, Model pengembangan ADDIE (Analysis, Design, Development, Implementation, Evaluation) merupakan model pengembangan yang sederhana dengan sistem penelitian yang sistematis memiliki tujuan untuk merumuskan memperbaiki serta mengembangkan dan menghasilkan suatu produk tertentu Teknik pengumpulan data memiliki berbagai macam cara pengamatan yang memiliki keunggulan masing-masing tergantung pada tujuan penelitian, sumber dari data yang tersedia dan inti konteks penelitian yang dilakukan. Wawancara, Angket Dokumentasi Teknik analisis data Analisis data kevalidan, data kepraktisan. Analisis efek potensial Hasil pengembangan media komik pada materi perubahan wujud benda peserta didik kelas IV di sekolah dasar dinyatakan praktis berdasarkan hasil diperoleh melalui angket respon peserta didik dengan peroleh nilai rata-rata presentase sebesar 95% pada tahap *one to one*, nilai rata-rata presentase sebesar 91% pada tahap *small grup*, dan nilai rata-rata presentase sebesar 95,8% pada tahap *field test* dengan kriteria sangat praktis. Hasil pengembangan media komik pada materi perubahan wujud benda untuk peserta didik kelas IV di sekolah dasar dinyatakan efektif berdasarkan hasil diperoleh melalui tes hasil belajar yang bisa dilihat berdasarkan meningkatkan hasil belajar peserta didik berdasarkan nilai rata-rata dari *pre test* adalah 32% dan dari *pos test* adalah 86% dengan kriteria sangat efektif, hal ini berarti pembelajaran menggunakan media komik ini memiliki efek potensial sehingga dapat digunakan dalam proses pembelajaran.

Kata Kunci: Komik, Pembelajaran, dan Wujud benda.

Pendahuluan

Learning media are all forms and intermediaries in conveying material so that it can be accepted by the students targeted in the learning process. Learning media is a tool used in the learning process as well as one of the teaching tools used by teachers to deliver teaching materials, increase student creativity and increase student focused attention in the learning process Firmadani, (2020). According to Wati, (2021) learning media functions to foster students' enthusiasm and curiosity because learning media will involve a sense of sensitivity and build students' imagination in the learning experience process with new insights through understanding the concepts of the material provided.

The word "Media" comes from another language which is a distant form of "medium", literally meaning intermediary or introduction. The National Education Association (NEA) defines media as all objects that can be manipulated, seen, heard, read or talked about along with the instruments that will be used for these activities. Media can help the effectiveness of learning in conveying the content of the material. Media is also a tool that helps a learning process so that messages are conveyed to achieve learning goals clearly. Media is also very important in the learning process. So media is a means of communication that educators use in the learning process so that students can understand the learning material (Nurfadhillah, 2021).

All of these problems can be overcome. When there are educators who are creative, innovative, and can develop learning media, especially comic media, the use of this media can be made easier to convey messages to other people. Which includes students. The role of the media is very important, in order to achieve learning objectives. One of them is by using comic media for teaching and learning in class IV.

Comic comes from English comic which means something interesting. One of the media developed by utilizing advanced technology is comic learning media. Not only that, there are many benefits of comic media in learning, including triggering motor sensors at an early age, recognizing more colors, being able to

imagine to express one's own opinion. Dewi, (2019).

Develop comics in the right way and can produce comics according to the needs and characteristics of students. Comics are images that have an interesting story line, are easy to understand, and can make it easy for them to understand difficult material. (Saputra, 2021). The advantages of the comic media used are an attractive cover design, consistent image characters, each example of material uses images, the illustrations and image characters used are attractive, the color proportions are appropriate, the language used is easy to understand and appropriate. (Sinta et al, 2021).

Based on the previous description, the development of this comic media includes various materials, namely Indonesian, Science and Mathematics. In this comic medium, it can increase the effectiveness and interest of students in learning so that students attract the attention of those who read with the many pictures and conversations in the story, and the characters in the comic become role models for conveying the message of values in the comic medium. The comic that will be developed this time is made using a printing technique that shows efficiency and practicality which has been designed with pictures, colors, illustrations, and a row of panels containing pictures that are clarified by word balloons to suit the characteristics of students to make it easier for students to understand the content of the story. is in the comics. The researcher will take science material which is different from the previous material, namely energy sources material and the researcher will take the current material, namely Changes in the Form of Objects. In this innovation, learning to use comic media is more interesting with the visualization of images which are able to provide verbal messages through dialogue between characters in the story so that they can help students absorb learning material. Comic media will be produced to contribute to the implementation of science learning. This comic product will be researched at SD Negeri 11 Betung, so that this comic is suitable for use by students in learning both in terms of material and the appearance of the comic which is attractive to students.

Based on the background of the problem above, the researcher was very encouraged to

conduct research with the research title, namely: "Development of Comic Media on the Material of Changes in Form of Objects for Class IV SD Negeri 11 Betung".

Metodologi Penelitian

The research uses the ADDIE development model. According to Asmayanti et al., (2020) the ADDIE-based learning media development model is an appropriate model as a guide in preparing media because it contains a systematic framework structure with five development stages. The ADDIE development model consists of stages (Analysis, Design, Development, Implementation, Evaluation) which is a simple development model with a systematic research system with the aim of formulating improvements, developing and producing a particular product (Leksono, 2023). Data collection techniques have various methods of observation, each of which has its own advantages depending on the research objectives, the source of the available data and the core context of the research being conducted. Interviews, Documentation Questionnaires Data analysis techniques Validity data analysis, practicality data. Analysis of potential effects

Hasil dan Pembahasan

From the results of the research that has been carried out, the researcher obtained a teaching material or learning media in the form of comics which will be developed using R&D (Research and Development) research and in accordance with the ADDIE development model in the product developed by the researcher in the form of printed teaching materials in the form of comics. The things that researchers do in carrying out the research process include analysis and design

(Design), development (Development), implementation (Implementation), and evaluation (Evaluation). Based on the results of observations and interviews conducted by researchers in October 2024 which were carried out during the time that the learning carried out by educators was still conventional in nature where students listened more to the teacher's explanations or were more likely to be listeners in the learning process and still made less use of learning media, only using participants' books. students as a learning resource, so that science learning is considered by students to be less interesting and boring. From the results of

observations and interviews conducted by the researcher, the researcher feels that there is a need to increase the knowledge of educators to create learning media that explains concepts that are not well understood by students. The solution to this problem is to vary the learning media in the form of comics used by educators with the aim of helping students understand the material on changes in the form of objects.

Learner Analysis

Based on the results of interviews conducted with 12 students in class IV, it is known that students are less interested in learning, especially in the matter of changing the shape of objects. This is because there is no variation in the learning process, the learning process tends to use available printed books so that students' interest and motivation is lacking so that students have difficulty understanding the material provided by the teacher.

1. Material Analysis

Material analysis can also be carried out to systematically select, research and determine relevant material according to students' needs. Data was also obtained from material analysis regarding Chapter 2 Forms of Substances and Their Changes in class IV.

Based on material analysis carried out with the aim of determining the right material to be used with the product to be developed. The material used by researchers in developing comic media is changes in the form of objects. Therefore, to make it easier for students who are encouraged to analyze the process of changing the form of objects, they will understand the material easily. The researcher also presents the material through comic media on the material changing the form of objects by creating a story line accompanied by pictures, so students will absorb it more easily. material to be presented.

Design

The results of the initial design stage which was carried out in September 2024 to design and design the comic media that will be developed and produce an initial concept for product development.

Development

The results of the analysis and design stages produce an initial design of learning media which is made into the first product draft. After the learning media in the form of comics on material changing the shape of objects is designed in the form of a first product draft, validity tests will be carried out on experts and field trials will be carried out.

One to one

This stage will be carried out on October 4 2024 with the subject being 3 class IV students at SD Negeri 11 BETUNG. Researchers conducted trials on selected students with different learning outcomes abilities, namely high, medium and low, and then the students were given directions regarding the activities to be carried out. Next, students are given a questionnaire to provide an assessment of the practicality of comic media. and the results of research on comic media at the one to one stage

Tabel 1. Hasil Penilaian Angket pada Tahap *One to one*

No.	Nama Peserta Didik	Skor	Nilai	Kriteria
1.	FRP	65	100%	Sangat Praktis
2.	Adrian	60	92%	Sangat Praktis
3.	AKN	61	93%	Sangat Praktis
Rata-rata			95%	Sangat Praktis

(Sumber : Olah Data, 2022)

The results of the student response questionnaire sheet with an average score of 95% can be concluded, based on the percentage criteria of an average score of 81% - 100%, that the comic media developed is very practical.

Implementation

After comic media is declared valid by media experts, material experts and language experts, then comic media can be implemented as a learning medium in students' learning activities. Comic media trials were carried out at SD Negeri 11 BETUNG with class IV students as subjects to get a response to comic media. Before distributing response questionnaires, the researcher first explained the learning material and after that showed the comic media to the

students. Researchers also distributed response questionnaires at the trial stage, namely the small group stage and the fly test carried out on October 5 2024.

The trial phase was carried out using a questionnaire to determine the practicality of the comic media developed by researchers. The questionnaire filling stage is carried out after students see comic media. Before the trial was carried out, students were given instructions on how to fill out the questionnaire that the researcher distributed.

a. Small Group (Small Group)

At this stage, it was tested on 7 students who were research subjects. At this stage the aim is to see the practicality of comic media in class IV elementary school. The implementation of the Small Group trial phase will be carried out on October 5 2024 at SD Negeri 11 BETUNG. The trial was carried out by students following the lesson and the researcher showing comic media to the students. Next, students fill out the student response questionnaire sheet.

Tabel 2. Hasil Penilaian Angket Pada Tahap *Small Grup*

No.	Nama Peserta Didik	Skor	Nilai	Kriteria
1.	CA	52	83%	Praktis
2.	IBNU	60	92%	Sangat Praktis
3.	HHD	61	93%	Sangat Praktis
4.	AJ	61	93%	Sangat Praktis
5.	MA	60	92%	Sangat Praktis
6.	ADIT	60	92%	Sangat Praktis
7.	ANN	61	93%	Sangat Praktis
Total			91,1%	Sangat Praktis

(Sumber : Hasil Angket Tanggapan Tahap *Small Grup*, 2022)

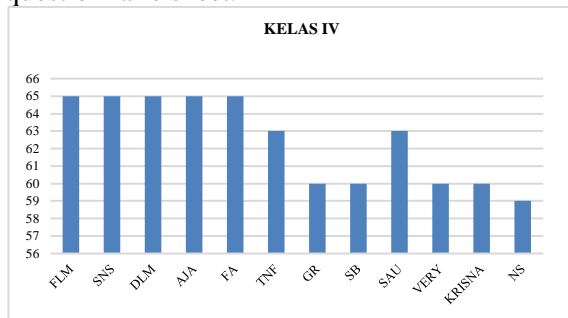
The results of the student response questionnaire show that the comic media developed is practical to use. Judging from the responses, it shows that students got the highest score of 93% very practical and the lowest score was 83% practical, so it can be seen that students are happy in the learning process using

comic media. So there are no revisions to the results of student responses.

Based on the results of data analysis of Small Group product trials carried out by 7 class IV students at SD Negeri 11 BETUNG in the table, it can be seen that students' responses to the total score obtained were a percentage of 91.1% with Very Practical Criteria.

a. Field Test (Field test)

At this stage, it was tested on 22 students who were research subjects. At this stage the aim is to see the practicality of comic media in grade IV elementary school. The field test phase will be carried out on October 5 2024 at SD Negeri 11 BETUNG. The trial was carried out by students following the lesson and the researcher showing comic media to the students. Next, students fill out the student response questionnaire sheet.



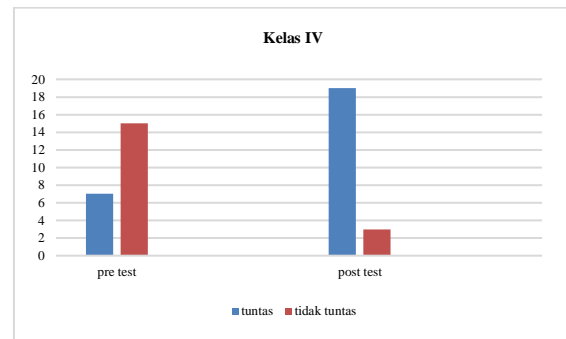
Gambar 1. Diagram Hasil Penilaian Angkat Pada Tahap *Field Test*

Analysis of Assessment Results

Products that have been validated by validators are then tested in one to one groups, small groups, and field test groups to determine the practicality of products in the form of comic media in chapter 2, the form of substances and their changes. Based on trials carried out in the field, it is known that the product being developed has product practicality so that no re-testing is carried out, comic media is based on responses from students. Comic media is also able to make students more interested in participating in learning activities in class so that comic media has a potential effect for use in the teaching and learning process, especially in the material on changes in the form of objects. The results of the images in the student response questionnaire show that the comic media developed is practical to use. Judging from the responses, it shows that students got the highest score of 100% and the lowest score of 90%. So it can be seen that students enjoy the learning

process using comic media. So there are no revisions to the results of student responses.

Based on the results of the analysis of field test product trials carried out by 22 class IV students at SD Negeri 11 BETUNG in the table, it can be seen that students' responses to the total score were obtained with a percentage of 95.8% with very practical criteria.



Gambar 2. Diagram Batang Penilaian

Based on the picture above, note that students who reach the KKM (Minimum Decision Criteria) are 70 in class IV at SD Negeri 11 Betung. From the beginning of the learning meeting there will be a pre-test multiple choice questions for students to find out the learning results before using comic media, where students will get grades that can be obtained by students who have completed or not completed. The results of the pre-test were 7 students who completed it and 15 students who did not complete it. Next, the second meeting in learning is the post test which uses comic media so that students can answer the questions that have been provided, so students can also answer questions from comic media, the results of the scores obtained by students from completed and incomplete post tests. The results of the post test that were completed were 19 students and the results that were incomplete were 3 students. In this case, it is because the time given to work on the test questions is less, causing students to be careful in working on the questions. So it can be concluded that the results of students' learning completeness at SD Negeri 11 BETUNG from the pre-test were 32% and from the post-test were 86% with very high criteria.

Evaluation (Evaluation)

At the evaluation stage, an evaluation is carried out starting from the design stage to implementation to determine the advantages and disadvantages of comic media based on suggestions and comments from experts and

experts as validators. After revising and filling out the validation questionnaire sheet, the researcher carried out data analysis aimed at determining the validity of the comic product being developed.

After researchers have conducted research and trials on students, the advantages and disadvantages of comic media can be identified as follows:

1. Comic media can attract and motivate students because the appearance of comic media has images and colors so that it can increase students' interest in learning.
2. Comic media can stimulate students to continue learning.
3. Comic media can make it easier for students to learn material on changes in the form of objects independently.

Apart from having the advantages described above, comic media also has disadvantages. The shortcomings of comic media in development are as follows:

1. Comic media only creates learning units so they can only be used in one meeting.
2. The use of comic media must be monitored by educators because students tend to use comic media by playing around and paying little attention to the material that has been presented.
3. Comic media is print media so it requires care so that this comic media does not get damaged quickly.

Discussion

The media developed by researchers is comic media in Class IV elementary science learning with the material "changes in the form of objects". This research uses the ADDIE method which consists of 5 stages, namely Analysis, Design, Development, Implementation and Evaluation with the aim of knowing the practicality of the media, the validity of the media and the potential effects. Comic media is a learning media that can provide enthusiasm and enthusiasm for students in the learning process. Wahid (2018) states that learning media is useful for facilitating interactions between educators and students in the learning process so that learning will be more effective and efficient.

According to Ramadhani (2022), a needs analysis in developing learning media is carried out to determine students' assessments of the learning media used and their expectations

for the learning media that will be created. Based on the statement above, researchers in developing comic media must know the analysis of the problems faced by students so that the media developed is useful in accordance with the needs analysis. The comic media used in science and science learning contains story lines that will be read by students, so this media aims to attract students' attention in the learning process.

In the development of comic media, validation is needed which will be carried out by validators to test the suitability of the learning media before it is tested. Based on data from the validation sheet which includes several aspects such as media design, media format, content suitability aspects, evaluation aspects, and language suitability aspects used through 3 validators, 87% of comic media development is not only valid but also practical to use. At the comic media practicality stage, researchers distributed questionnaires to determine the level of practicality of the media being developed. The learning media is said to be practical if students are able to create an effective and enjoyable learning process and are enthusiastic in the learning process. This is in accordance with Adi's (2021) statement that the use of learning media is able to create an atmosphere of an active, effective and efficient learning process so that it can provide the realization of previously discovered educational goals. This is proven by the results of the questionnaire for all students which reached a percentage of 87% in the very practical to use category.

According to Yusri (2020), an increase in the quality of education will be achieved if the learning process carried out in the classroom is truly effective and useful for achieving the expected knowledge, attitudes and skills. So, researchers carried out a learning process involving 22 students by applying learning media to improve the quality of education regarding students' abilities. Therefore, researchers carried out the test stage as proof that learning media can improve the quality of education through the completeness of student learning outcomes. Meanwhile, to find out the potential effect, it was carried out on class IV students at SD Negeri 11 BETUNG, totaling 22 students, through 15 multiple choice test questions with a completion percentage of 86%

or 19 students achieved the KKM score and 3 students below the KKM. Based on this percentage, the potential effect and final results or post test are with a percentage of 86% ($p > 80\%$) so that comic media is categorized as very potential.

So learning that is interesting for students becomes a stimulus for students in the learning process (Emilia, 2020). From the statement above, comic media has an important role, one of which is learning media that attracts students to be enthusiastic about learning and have high learning initiative.

According to Roy (2017), the role of comic media is good in conveying messages in the form of delivering science learning material to students because this comic media is interesting, funny, perspective, and has an appeal so that it can make students enthusiastic about learning so that comic media can be used as a means to help or make it easier for students to understand the material on changes in the form of objects. By creating learning conditions to convey and improve student learning outcomes.

Conclusion

Based on the results of research conducted by researchers at SD Negeri 11 BETUNG class IV using comic media on the material on changes in the form of objects, the conclusions obtained. The results of the development of comic media on the material on changes in the shape of objects for class IV students in elementary schools were declared valid based on the results obtained. obtained through expert validation sheets which obtained an average of 87% from validators with very valid criteria.

The results of the development of comic media on material changing the shape of objects for class IV students in elementary schools were stated to be practical based on the results obtained through student response questionnaires with an average percentage score of 95% at the one to one stage, an average percentage score of 91% at the small group stage, and the average percentage score was 95.8% at the field test stage with very practical criteria.

The results of the development of comic media on material changing the shape of objects for class IV students in elementary schools were declared effective based on the

results obtained through learning outcomes tests which can be seen based on improving student learning outcomes based on the average score from the pre-test being 32% and from the post-test is 86% with very effective criteria, this means that learning using comic media has a potential effect so that it can be used in the learning process.

REFERANCE

- Ahmad, F., & Mustika, D. (2021). Problematika Guru Dalam Menerapkan Media pada Pembelajaran Kelas Rendah Di Sekolah Dasar. *Jurnal Basicedu*, 5(4), 2008–2014. <https://jbasic.org/index.php/basicedu/article/view/1056>
- Asmayanti, A., Cahyani, I., & Idris, N. S. (2020). Model Addie Untuk Pengembangan Bahan Ajar Menulis Teks Eksplanasi Berbasis Pengalaman. *Seminar Internasional Riska Bahasa XIV*, 259–267. <http://proceedings.upi.edu/index.php/riksabahasa>
- Cecep Kustandi, M.Pd., Dr. Daddy Darmawan, M. S. (2020). *Pengembangan Media Pembelajaran: Konsep & Aplikasi Pengembangan Media*.
- Cecep Kustandi, M.Pd., Daddy Darmawan, M. S. (2020a). *pengembangan media pembelajaran*. kencana.
- Cecep Kustandi, M.Pd., Daddy Darmawan, M. S. (2020b). *pengembangan media pembelajaran*. kencana.
- Cecep Kustandi, M.Pd., Daddy Darmawan, M. S. (2020c). *PENGEMBANGAN MEDIA PEMBELAJARAN* (Kencana (ed.)).
- Chasanah, K. U., & Leksono, I. P. (2023). *Pengembangan Media Pembelajaran Berbasis Video Dengan Adobe Captivate Menggunakan Model Addie Pada Materi Rias Fantasi*. 5(1), 108–114.
- Darllis, N., F, F., & Miaz, Y. (2020). Pengembangan Desain Pembelajaran Model Assure Berbasis Problem Based Learning Menggunakan Komik di Sekolah Dasar. *Jurnal Basicedu*, 5(1), 334–342. <https://doi.org/10.31004/basicedu.v5i1.689>
- Dasi, N. L. K., & Putra, S. (2022). Pengembangan Media Pembelajaran E-Komik Berbasis Pendekatan Kontekstual Pada Materi Perubahan Wujud Benda Muatan IPA Kelas V SD. *Al-Irsyad*, 4(3), 354. <https://core.ac.uk/download/pdf/32259950>

- 9.pdf
- Dewi, M. A. R. (2019). PENGEMBANGAN MEDIA PEMBELAJARAN KOMIK MATEMATIKA SISWA KELAS IV SEKOLAH DASAR BERBASIS BUDAYA. *Universitas Islam Negeri Raden Intan Lampung*, 1(1), 39–48. <https://doi.org/10.46306/lb.v1i1>
- Ellyas Asmara, Y., Wahyudi, & Sahari, S. (2023). Pengembangan Media Pembelajaran Audio Visual Berbasis Powtoon Pada Pembelajaran IPA Materi Sifat Dan Perubahan Wujud Benda Kelas IV Sekolah Dasar. *Cetta: Jurnal Ilmu Pendidikan*, 6(1), 97–107. <https://doi.org/10.37329/cetta.v6i1.1988>
- Emilia, E., Ratnawati, R., & Subhan, M. (2022). Pengembangan Media Komik untuk Pembelajaran IPA Tema Berbagai Pekerjaan Kelas IV Sekolah Dasar. *Jurnal Basicedu*, 6(5), 8259–8267. <https://doi.org/10.31004/basicedu.v6i5.3663>
- Febriyanti, E., Kusmarni, Y., & Ma'mur, T. (2021). Kreativitas Guru dalam Mengembangkan Media Pembelajaran Digital pada Pembelajaran Sejarah Daring (Studi Deskriptif Terhadap Guru Sejarah SMA Di Kota Bandung). *FACTUM: Jurnal Sejarah Dan Pendidikan Sejarah*, 10(2), 147–154. <https://doi.org/10.17509/factum.v10i2.38891>
- Gogahu, D. G. S., & Prasetyo, T. (2020). Pengembangan Media Pembelajaran Berbasis E-Bookstory untuk Meningkatkan Literasi Membaca Siswa Sekolah Dasar. *Jurnal Basicedu*, 4(4), 1004–1015. <https://doi.org/10.31004/basicedu.v4i4.493>
- Hidayat, D. I. (2023). Analisis Media Komik Dalam Mengajarkan Anak-Anak Kelas 4-6 Sd Mengenai Manfaat Urban Farming. *Tuturrupe*, 5(2), 123–133. <https://doi.org/10.24167/tuturrupe.v5i2.11251>
- Junaidi, J. (2019). Peran Media Pembelajaran Dalam Proses Belajar Mengajar. *Diklat Review: Jurnal Manajemen Pendidikan Dan Pelatihan*, 3(1), 45–56. <https://doi.org/10.35446/diklatreview.v3i1.349>
- Kristianto, D., Sri Rahayu, T., Studi Pendidikan Guru Sekolah Dasar, P., & Kristen Satya Wacana Salatiga, U. (2020). Pengembangan Media Pembelajaran E-Komik untuk Meningkatkan Kemampuan Pemecahan Masalah Matematika Kelas IV. *Jurnal Pendidikan Tambusai*, 4(2), 939–946.
- Kustandi & Darmawan. (2020). *Pengembangan Media Pembelajaran*. kencana.
- Lestari, P., Hartono, D. P., & Rosita, L. (2023). Pengembangan media pembelajaran e-comic Geografi berbasis discovery learning di kelas XI IPS. *PeTeKa (Jurnal Penelitian Tindakan Kelas Dan Pengembangan Pembelajaran)*, 6(3), 471–491.
- Masita. (2022). *Pengembangan Pembelajaran Matematika*. PT Nas Media Indonesia.
- Muliani, F. (2020). PENGEMBANGAN MEDIA PEMBELAJARAN BERUPA BUKU KOMIK PADA MATERI SEJARAH DI SEKOLAH DASAR (Studi Kasus: SD Negeri 148 Pekanbaru). *EduTeach: Jurnal Edukasi Dan Teknologi Pembelajaran*, 1(1), 40–52. <https://doi.org/10.37859/eduteach.v1i1.1806>
- Narestuti, A. S., Sudiarti, D., & Nurjanah, U. (2021). Penerapan Media Pembelajaran Komik Digital untuk Meningkatkan Hasil Belajar Siswa. *Bioedusiana: Jurnal Pendidikan Biologi*, 6(2), 305–317. <https://doi.org/10.37058/bioed.v6i2.3756>
- Payanti, D. A. K. D. (2022). Peran Komik Digital sebagai Media Pembelajaran Bahasa yang Inovatif. *Sandibasa I: Seminar Nasional Pendidikan Bahasa Dan Sastra Indonesia I*, 4(April), 464–475. <https://ojs.mahadewa.ac.id/index.php/sandibasa/article/view/2035%0Ahttps://ojs.mahadewa.ac.id/index.php/sandibasa/article/download/2035/1484>
- Pratiwi, N., & Astuti, S. (2022). Pengembangan Media Komik (Komik Elektronik) Untuk Meningkatkan Minat Membaca Siswa Kelas V SD. *Jurnal Pendidikan Dan ...*, 4, 3935–3944. <http://journal.universitaspahlawan.ac.id/index.php/jpdk/article/view/8865%0Ahttp://journal.universitaspahlawan.ac.id/index.php/jpdk/article/download/8865/6695>
- Riwanto, M. A., & Wulandari, M. P. (2019).

- Efektivitas penggunaan media komik digital (cartoon story maker) dalam pembelajaran tema selalu berhemat energi. *Jurnal PANCAR*, 2(1), 14–18.
- Rochman, F., Hunaifi, A. A., & Santi, N. N. (2023). *DEVELOPMENT OF INTERACTIVE MULTIMEDIA IN IMPROVING THE DIGITAL LITERACY SKILLS OF CLASS 4 STUDENTS OF sdn SDN KARANG TENGAH 3*. 10(3), 859–868.
- Rosyida, A. (2019). *pengembangan media komik untuk meningkatkan hasil belajar siswa sekolah dasar*.
- Saputra, V. H., & Donaya, P. (2021). Komik Digital Berbasis Scientific Method Sebagai Media Pembelajaran di Masa Pandemi COVID-19. *Jurnal Riset Teknologi Dan Inovasi Pendidikan (Jartika)*, 4(1), 89–100.
- Saputro, K. A., Sari, C. K., & Winarsi, S. (2021). Peningkatan Keterampilan Membaca Dengan Menggunakan Media Audio Visual Di Sekolah Dasar. *Edukatif: Jurnal Ilmu Pendidikan*, 3(5), 1910–1917. <https://edukatif.org/index.php/edukatif/article/view/690>
- Septy Nurfadhillah. (2021a). *MEDIA PEMBELAJARAN* (R. Awahita (ed.)). CV Jejak.
- Septy Nurfadhillah. (2021b). *MEDIA PEMBELAJARAN DI JENJANG SD* (R. Awahita (ed.)). CV Jejak.
- Sinta, I. N., Wardani, S., & Kurniawan, C. (2021). The Influence of Comic Media on Students' Concept Understanding on Chemical Bonding Material. *International Journal of Active Learning*, 6(2), 85–90. <http://journal.unnes.ac.id/nju/index.php/ijal>
- Sugiarto, A. F., & Julianto. (2021). Pengembangan Media Komik Digital Materi Perubahan Wujud Benda IPA Kelas V Sekolah Dasar. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar*, 09(Vol 9 No 1 (2021)), 1338–1348. <https://ejournal.unesa.ac.id/index.php/jurnal-penelitian-pgsd/article/view/39015/34285>
- Sugiyono. (2019a). *METODE PENELITIAN DAN PENGEMBANGAN (Research and Development/ R&D)*. 38.
- Sugiyono. (2019b). *metode penelitian kuantitatif,kualitatif dan R&D*. Alfabeta.
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif dan R&D* (M. Dr. Ir. Sutopo. S.Pd (ed.)). ALFABETA.
- Sugiyono. (2022). *METODE PENELITIAN KUANTITATIF,KUALITATIF DAN R & D*. ALFABETA.
- Sulikah, W., Setyawan, A., & Citrawati, T. (2020). Identifikasi Hasil Belajar Siswa Muatan IPA Materi Perubahan Wujud Benda Kelas V SDN Socah 4. *Prosiding Nasional Pendidikan*, 551–556.
- Takaku, T., Maki, Y., & Nakamura, S. (2023). A Method to Construct a Comic Spoiler Dataset and Analysis of Comic Spoilers. *Procedia Computer Science*, 225, 2970–2980. <https://doi.org/10.1016/j.procs.2023.10.290>
- Taufik rusmayana. (2021). *MODEL PEMBELAJARAN ADDIE INTEGRASI PEDATI DI SMK PGRI KARISMA BANGSA SEBAGI PENGGANTI PRAKTEK KERJA LAPANGAN DI MASA PANDEI COVID 19* (Rudi Hartono (ed.)). WIDINA BHAKTI PERSADA BANDUNG.
- Valerie, C., Waluyanto, H. D., & Zacky, A. (2020). Perancangan Komik Digital Webtoon untuk Mencegah Terjadinya Kecemasan Sosial di Kalangan Remaja. *Jurnal DKV Adiwarna*, 1(16), 10. <https://publication.petra.ac.id/index.php/dkv/article/view/10182>
- Viera Valencia, L. F., & Garcia Giraldo, D. (2019). PENGEMBANGAN BAHAN AJAR BERBASIS SAINS TEKNOLOGI MASYARAKAT PADA MATA PELAJARAN IPA MATERI PERUBAHAN WUJUD BENDA KELAS IV SDN MANGGIS 2. *Angewandte Chemie International Edition*, 6(11), 951–952., 2, 5041–5051.
- Wandini, R., & Bariyah, C. (2022). Metode Eksperimen pada Proses Pembelajaran Perubahan Wujud Benda pada Sekolah Dasar. *Jurnal Pendidikan Dan Konseling*, 4(3), 1707–1715.
- Yudi Hari Rayanto, & Sugiyanti. (2020). *PENELITIAN PENGEMBANAGN MODEL ADDIE DAN R2D2:TEORI DAN PRAKTEK* (Tristan rokhmawan (ed.)). Lembaga Academic & Research institute.