Jurnal Pendidikan Dasar Nusantara Vol 10, No 1, July 2024
ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

Development of Fun Flipbook Activity Media in Improving Numeracy Skills of Grade IV in Elementary Schools

Submitted:
May 03, 2024
Accepted:
June 22, 2024
Published:
July 31, 2024

Intan Susetyo Kusumo Wardhani[1]
iin.intanskw@gmail.com
Elementary School Teacher Education, Elementary Education,
STKIP PGRI Trenggalek

Abstract: The purpose of this study was to determine the validity of the development of fun flipbook activity media in improving the numeracy skills of fourth grade students, to determine the implementation of fun flipbook activity media in improving the numeracy skills of fourth grade students, and to test the effectiveness of fun flipbook activity media in improving the numeracy skills of fourth grade students. The method and type of research used in this study were RnD with the ADDIE development model. The instruments used in this study included questionnaires, observation sheets and tests. This study was conducted at SDN 2 Kendalrejo with research subjects of 38 fourth grade students with low, medium and high abilities. From the study it was known (1) the level of validity of fun flipbook activity, from expert validation showed a percentage achievement of 91.5% with a high category or with very valid criteria and feasible to use, (2) the level of implementation based on the observation sheet, implemented reached a percentage of 95.5% with a very high category (3) the level of effectiveness of fun flipbook activity reached a percentage of 94.72% with a high category and feasible to use. Based on the data above, it shows that the fun flipbook activity developed is stated to be very valid, has high implementation and is effective for use in learning. Based on the data above, it shows that the fun flipbook activity media developed is stated to be very valid, has high implementation and is effective for use in learning.

Keywords: fun flipbook activity, numeracy, elementary school

PRELIMINARY

Mathematics is one of the subjects taught at elementary school level that is inseparable from the use of numbers and figures. The ability to use numbers or figures is commonly called numeracy skills. Numeracy skills are basic skills to solve problems related to everyday life. In addition, numeracy skills are one of the basic elements of all abilities to master various tasks in learning. This is in line with Achdiyat & Utomo (2017:234) who concluded that there is a positive and significant relationship between numerical abilities and the mathematics learning process. So that numerical abilities

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

become basic abilities that are closely related to mathematics learning, because in mathematics learning in general, numbers and figures are used in carrying out calculation activities. In addition, another goal of mathematics learning is to prepare students to be able to use mathematics and mathematical thinking patterns in everyday life to study various sciences. Mathematics plays an important role in all aspects of human life. Many things are related to mathematics learning, especially in the 21st century. Students are expected to have the ability to understand the science of calculation as a whole, skills in solving problems to be able to develop mathematical reasoning skills. One of the elementary school mathematics materials is arithmetic operations. In arithmetic operations, there are 4 arithmetic operations of whole numbers that are often used, such as addition, subtraction, multiplication, and division. While whole numbers are the number of members of a set consisting of a set that has members and a set that does not have members or whole numbers consisting of natural numbers (positive numbers) and zero (Oktaviyani & Karlimah, 2019). Arithmetic operation material is very basic and continues to be used at any time or is used in everyday life.

In mathematics learning, learning media are often found that aim to make it easier for students to understand mathematical material in the learning process. Learning media are used to make it easier for teachers to convey learning materials to students and make the learning process more interesting. This is in line with the opinion of Khanifatul (2013:30) who states that learning media is anything that is used to channel learning materials so that it can stimulate the attention, interest, thoughts and feelings of students to achieve learning goals. Therefore, the use of learning media can help achieve learning success so that it is easier to achieve the learning goals that have been formulated.

Based on observations and interviews at SDN 2 Kendalrejo on May 9, 2023. Based on observations at SDN 2 Kendalrejo on May 9, 2023. SDN 2 Kendalrejo has used the Merdeka curriculum. The purpose of using the Merdeka curriculum is to focus on essential material and on developing the character of Pancasila student profiles. The infrastructure at SDN 2 Kendalrejo already has many learning support facilities, including Integrated Instrument Components (KIT) such as Science KIT, Social Studies KIT, LCD/projector, library, extracurricular activities, and reading corners. However, at SDN 2 Kendalrejo, the application of learning media is still lacking in mathematics content, so based on observations, the needs analysis can be seen, namely that it still requires the

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

development of other mathematics learning media to support the teaching and learning process. Based on interviews with the homeroom teacher for grade IV, the researcher found that the learning media used in grade IV learning is realistic mathematics. This directs students more to apply learning media by utilizing the surrounding environment. This makes students less enthusiastic and easily bored in participating in learning. So the use of IT-based media needs to be developed to support mathematics learning materials, namely whole number arithmetic operations. So based on the analysis of needs in the field, it is necessary to develop mathematics media to support the learning process in class IV. Therefore, researchers are interested in developing Fun Flipbook Activity learning media. Fun Flipbook Activity learning media is in accordance with the characteristics of class IV students who have an interest in learning, good attitudes, high learning motivation and like something interesting like learning media. This Fun Flipbook Activity learning media contains files in the form of images, materials about daily activities related to whole number arithmetic operations. This learning media does not make students get bored quickly and does not feel burdened during the learning process. In addition, it can make students more active in participating in the learning process. By using this media, it is expected to increase students' numeracy skills during the learning process so that learning objectives can be achieved.

This research is supported by previous research conducted by Putri & Sumardi (2022), entitled Development of Digital Flipbook Teaching Materials for Elementary School Students, based on the results of the study, it shows that Digital Flipbook Teaching Materials for Elementary School Students are suitable for use in social studies learning which contains an explanation of material about Indonesian Cultural Diversity. Then the research conducted by Sari & Ahmad (2021) entitled Development of Digital Flipbook Learning Media in Elementary Schools shows that digital flipbook media in the field of social studies, the material on the beauty of diversity in my country, class IV, is very suitable to be applied as a learning tool. Furthermore, research conducted by Rusnilawati & Gustiana (2017), entitled Development of Electronic Teaching Materials (BAE) Assisted by Flipbooks Based on Problem Solving Skills with the CTL Approach in Mathematics Learning for Class V Elementary Schools with the results of the study Electronic Teaching Materials (BAE) Assisted by Flipbooks Based on Problem Solving Skills with the CTL Approach in Mathematics Learning for Class V Elementary Schools

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

is valid and effective to use. The difference between this research and previous research is that this research develops fun flipbook activities using the heyzine and canva applications. In this media, it provides student activities related to daily life to carry out numeracy activities packaged with games. While the similarities are the same using flipbook media. This aims to make students interested in learning so that learning objectives can be achieved optimally. The purpose of this study is to develop fun flipbook activity learning media to improve the numeracy skills of grade IV elementary school students that are valid, practical and effective.

.

METHOD

The research method used in this study is research and development. According to Sugiyono (2015:407) that research and development or Research and Development is a research method used to produce certain products and will be tested for their effectiveness whether they are suitable for use and function for the wider community. The model used in this study is ADDIE. This model was chosen because the steps are in accordance with the development of fun flipbook activity. According to Sari (2016:93) the steps for product development using the ADDIE model are more rational and more complete, namely Analysis, Design, Development, Implementation, and Evaluation. Meanwhile, for the research steps, the researcher used 6 research steps developed by (Borg & Gall, 2003:573) as follows. (1) preliminary study, (2) planning, (3) product development, (4) product validation, (5) limited scale product trials, and (6) final product.

Fun flipbook activity media in order to be suitable and effective for use, the media is validated in terms of material, language, media, and practitioners, then revisions are made to the product. Validation was carried out by a validator expert for the product developed who had a Master's degree so that they had mastered their field of expertise and for practitioner validation it was carried out by a grade IV teacher who had a Bachelor's degree. Validation was carried out using an instrument grid that was made in detail and in detail for each material developed. Meanwhile, for product trials, data collection tools were used in the form of activity observation guidelines and product implementation. The trial design carried out by the researcher included several limited group trial activities using fun flipbook activity media to 10 students who were determined using random sampling and then revising the fun flipbook activity used.

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

Furthermore, a large-scale trial was carried out by giving tests, student response questionnaires to 38 students, and grade IV teacher response questionnaires, then revisions were made to the deficiencies to produce the final product.

The instruments used in this study were questionnaires, observations, and tests. The data analysis techniques used were qualitative and quantitative. Quantitative data was used to measure validity, implementation, effectiveness, learning outcome tests, and student response data. Data analysis was carried out by grouping qualitative data in the form of input, responses, suggestions for improvement, and criticism. The results of the data analysis were then used as a basis for revising numeracy-based learning video products with local wisdom. The development product in the form of a fun flipbook activity is said to be feasible and can be used if the percentage of the obtained score reaches 61% -100% with the criteria of feasible/high and very feasible/very high. In developing the fun flipbook activity, researchers used the heyzine and canva applications. The steps taken are to download the Canva and Heyzine applications via a laptop, then create images related to arithmetic operations, then create text materials and quizzes with Canva which will be included in Heyzine, then after everything is ready, enter the Heyzine application and provide sound effects by providing an explanation of the material contained in the numeracy-based learning video and the last stage is to save it in the Heyzine application.

RESULTS

The results of the expert validation of the material on the problem-based fun flipbook activity are getting 100% achievement criteria with a very valid category with a description that can be used with revisions, the validator provides notes in the form of examples in the material that need to be added. So the fun flipbook activity needs to be improved before being used. Furthermore, the language validation on the fun flipbook activity is getting 92.5% achievement criteria with a valid category with minor revisions regarding good and correct writing and standardization of terms. In the validation of media or products on the fun flipbook activity, it is getting 92.1% achievement criteria with a very valid category with a description that can be used with minor revisions regarding the background used adjusted to the title taken. Furthermore, it was validated by practitioners whose results were 92.5% with minor revisions in the form of examples

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

of material that are more in line with the daily activities of students. After all were revised from the expert and practitioner validation, a small-scale test was carried out in which there were 10 students as the subjects. The small-scale test was carried out in one meeting in learning by providing a student response questionnaire regarding the fun flipbook activity.

Table 1. Recapitulation of Expert Test

No	Data source	Score (%)	(%) Criteria
1.	Learning Media Expert	92,1%	Very Valid
2.	Material/Content Expert	100%	Very Valid
3.	Linguist	92,5%	Very Valid
	Average	91,5%	Very Valid

Table 2. Results of Practitioner Data Analysis

No	Rated aspect	Score		Percentage	Criteria
		Amount	Maximum		
1.	Effectiveness	19	20	95%	Very Practical
2.	Communicative	19	20	95%	Very Practical
	Total	38	40	95%	Very Practical

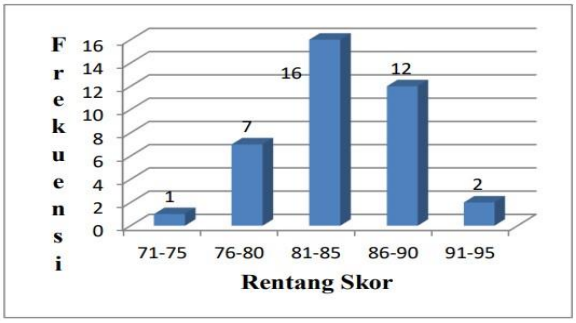
Table 3. Description of Students' Numerical Ability in Small-Scale Test

Variabel	N	Minimum	Maximum	Mean	Std. Deviation
Numerical capabilities	10	22	88	55	11

After conducting a small-scale test and revision, a field-scale test was conducted in class V with 38 students as subjects. In the first meeting of the field trial, the percentage was 84.7%, which was included in the high criteria, then the field trial at the second meeting increased with a percentage of 88.7%, which was included in the high criteria, and the field trial at the third meeting also increased significantly with a percentage of 95.5% in the very high category. So according to the product implementation criteria, the flipbook activity falls into the very high category.

Furthermore, to test the effectiveness, it can be seen from the results of the student response questionnaire and test. Students are said to have completed classical learning if 75% get a score of ≥ 70. The frequency of student learning outcome completion is presented in a frequency graph.

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456



Picture 1. Numeracy Comprehension Test
Source: Prepared by researchers, 2023

From the graph of learning outcomes above, it can be seen that 1 student got a score in the range of 71-75, 7 students got a score in the range of 76-80, 16 students got a score in the range of 81-85, 12 students got a score in the range of 86-90 and 2 students got a score in the range of 91-95. So it can be said that 38 grade IV students have completed their understanding of numeracy skills, it can be seen that more than 75% of students got a score ≥ 70. The student response questionnaire to the fun flipbook activity showed an average of 94.72% according to the analysis in chapter III that 94.72% showed a very high category. This shows that the response of students after being given a fun flipbook activity can support the level of effectiveness of using fun flipbook activity, including in the very high category or effectively used in learning. The instruments used in testing the product against the fun flipbook activity are divided into three aspects, namely validity, implementation and effectiveness. The data from the analysis of validity, implementation and effectiveness are presented in table 4 as follows.

Table 4. Results of analysis of the level of validity, implementation, and effectiveness

No	Rated aspect	Percentage Score	Category
1	Validity	91,5%	High
2	Implementation	95,5%	Very High
3	Effectiveness	94,72%	Very HIgh

Source: research results, 2023

Based on table 4 above, it can be seen that the validity of expert validation regarding fun flipbook activity shows an achievement level of 91.5%, which is included in the high and valid category. This validity means that fun flipbook activity is suitable for use in learning mathematics for grade IV of elementary school. In the product trial that has been carried out, it can be analyzed that the implementation aspect of fun flipbook

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

activity has achieved 95.5%, which is included in the very high category and is suitable for use. The effectiveness of the fun flipbook activity product is assessed from the student response questionnaire and the test shows a percentage of 94.72%, which is included in the very high category and is suitable for use.

The development of this fun flipbook activity has generally contributed to introducing numeracy literacy. This is because fun flipbook activity contains pictures of daily activities, materials, quizzes related to arithmetic operations. This is in line with Haerudin (2018) who stated that there is an influence of numeracy literacy on thinking patterns and habits. The habit of associating a certain number or calculation with problems in everyday life builds a positive mindset in solving problems systematically. The development of fun flipbook activity products is a consideration of the importance of knowledge of numeracy for all areas of life so that the creation of technology-based media is expected to provide new innovations in mathematics learning, especially in elementary schools. In line with Letwinsky's opinion (2017) which states that when access to technology becomes more abundant, educators must be aware of the expanded potential of the development of this technology. Ojose (2011) stated "In order to better understand mathematical literacy, it is important to throw some light on the subject matter of mathematics. Mathematical concepts, structures, and ideas have been invented as tools to organize phenomena in the natural, social, and mental worlds". This statement shows the importance of the integrity of various components such as nature, social, and everyday life in developing mathematics. So that in studying fun flipbook activities, students are indirectly helped to understand numeracy skills to the maximum.

DISCUSSION

The product developed in this study is a fun flipbook activity media to improve numeracy skills in mathematics learning for grade IV of elementary school. Through the educational learning media developed, it is expected to be able to optimize the learning process and improve students' numeracy skills and can create a pleasant learning atmosphere. According to Wati & Susilawati (2019:62) the learning media applied by teachers must be creative and interesting so that the material presented is easy for students to understand. Fun flipbook activity media can attract attention and arouse curiosity, and can improve students' numeracy in daily activities, so that students are able to learn

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

independently. Fun flipbook activity media for grade IV of elementary school is designed as attractively as possible equipped with attractive illustrations using the help of the heyzine and canva applications. The purpose of this development research is to produce fun flipbook activity media that is feasible and valid for use in the learning process.

The validity of the product was tested using a questionnaire instrument which contained notes of comments, suggestions and criticisms by experts, namely media, material and language experts. Based on the results of the expert validation recapitulation, the fun flipbook activity media showed an average percentage of 91.92%, so that the fun thinkers book media that had been developed was included in the category 123 "Very Valid". However, the fun flipbook activity media was revised according to the comments and suggestions of experts so that the fun flipbook activity media was suitable for use in the learning process. The method of implementing the use of fun flipbook activity media to improve numeracy skills in mathematics learning is very easy to use. The fun flipbook activity media is also equipped with detailed instructions for using the media and each exercise also has instructions for working on it, making it easier for students to use the fun flipbook activity media.

From the results of observations of student activities, it shows that students are able to understand the instructions for working on the media, are able to analyze images on the media according to the exercises being done, and are active in participating in learning. So that the implementation of learning with fun flipbook activity media can reach 95.5%. The effectiveness of learning in the use of fun flipbook activity media to improve numeracy skills in fourth grade mathematics learning at SDN 2 Kendalrejo can be seen from the student response questionnaire and test. The results of the student response questionnaire and test show that with the fun flipbook activity media, students feel happy because there are interesting illustrations, it is easier to understand learning materials in improving numeracy skills, and the learning process becomes more active and enjoyable. Fun flipbook activity media to improve numeracy skills in mathematics learning can be declared effective through learning activities. By conducting a pretest and posttest on 38 fourth grade students from SDN 2 Kendalrejo with a total of 15 questions, 10 multiple choices and 5 questions by means of. The results of the pretest and posttest scores after using the media showed that the average score in the pretest was 73.42 and the average score in the posttest was 83.75. So it can be concluded that there was an

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

increase in the pretest to posttest score of 10.33 and the score obtained increased more than the KKM score of 75. Based on the results of the average scores in the pretest and posttest, it can be concluded that there is a difference before and after the increase in students' numeracy skills in the use of fun flipbook activity media for grade IV elementary schools. This shows that the response of students after being given fun flipbook activity can support the level of effectiveness of using fun flipbook activity, including in the very high category or effectively used in learning with an average of 94.72%.

CONCLUSION

The conclusion of this study is that fun flipbook activity can provide a technology-based learning experience that motivates students to learn about numeracy. In addition, it makes it easier for students to learn material about numeracy. The development of fun flipbook activity products can be said to be feasible for use in terms of validity, implementation, and effectiveness. This study was conducted in elementary schools with research subjects of 38 grade IV students with low, medium and high abilities. From the study it is known (1) the level of validity of fun flipbook activity, from expert validation shows the level of achievement of the percentage figure of 91.5% with a high category or with very valid criteria and feasible to use, (2) the level of implementation based on the observation sheet, implemented reaching a percentage of 95.5% with a very high category (3) the level of effectiveness of fun flipbook activity reaches a percentage of 94.72% with a high category and feasible to use. Based on the data above, it shows that the fun flipbook activity developed is stated to be very valid, has high implementation and is effective for use in learning. Based on the data above, it shows that the fun flipbook activity media developed is stated to be very valid, has high implementation and is effective for use in learning. It is recommended for the use of fun flipbook activity for schools to hold training for educators on technology-based programs and provide adequate facilities and infrastructure. For educators, they must be able to improve their competencies so that they can create technology-based media. For students, they can provide motivation to learn so that they can improve their numeracy skills. For further developers, they should use more interesting images and varied quizzes.

ISSN 2579-6461 (Online) ISSN 2460-6324 (Print)
DOI: https://doi.org/10.29407/jpdn.v10i1.22456

REFERENCES

Achdiyat, M., & Utomo, R. (2017). Kecerdasan Visual-Spasial, Kemampuan Numerik, dan Prestasi Belajar Matematika. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, *7*(3), 234–245. https://doi.org/10.30998/formatif.v7i3.2234

Borg, W. R., & Gall, M. D. (2003). *Educational Research, An Introduction* (4th ed.). New York: Longman Inc.

Haerudin, H. (2018). Pengaruh Literasinumerasi Terhadap Perubahan Karakter Siswa. *Prosiding Sesiomadika*, *1*(1), 401–409. Retrieved from https://journal.unsika.ac.id/index.php/sesiomadika/article/view/2123

Khanifatul. (2013). *Pembelajaran Inovatif*. Yogyakarta: Ar-Ruzz Media.

Letwinsky, K. M. (2017). Examining the Relationship between Secondary Mathematics Teachers' Self-Efficacy, Attitudes, and Use of Technology to Support Communication and Mathematics Literacy. *International Journal of Research in Education and Science*, *3*(1), 56–66.

Ojose, B. (2011). Mathematics Literacy: Are We Able To Put The Mathematics We Learn Into Everyday Use. *Journal of Mathematics Education*, *4*(1), 89–100. Retrieved from https://www.researchgate.net/publication/228874128_Mathema tics_Literacy

Oktaviyani, H., & Karlimah, K. (2019). Peningkatan Pemahaman Konsep Operasi Hitung Penjumlahan Bilangan Cacah pada Siswa SD Menggunakan Media Pop Up Book. *PEDADIDAKTIKA: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, *6*(1), 203–210. https://doi.org/10.17509/pedadidaktika.v6i1.13180

Putri, A. D. A., & Sumardi, S. (2022). Pengembangan Bahan Ajar Digital Flipbook untuk Siswa SD. *PEDADIDAKTIKA: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, *9*(1), 173–186. https://doi.org/10.17509/pedadidaktika.v9i1.53130

Rusnilawati, R., & Gustiana, E. (2017). Pengembangan Bahan Ajar Elektronik (BAE) Berbantuan Flipbook Berbasis Keterampilan Pemecahan Masalah Dengan Pendekatan CTL Pada Pembelajaran Matematika Kelas V Sekolah Dasar. *Profesi Pendidikan Dasar*, *4*(2), 190–201. Retrieved from https://journals.ums.ac.id/index.php/ppd/article/view/5450

Sari, B. K. (2016). *Desain Pembelajaran Model ADDIE dan Implementasinya Dengan Teknik Jigsaw*. Sidoarjo: Universitas Muhammadiyah Sidoarjo.

Sari, W. N., & Ahmad, M. (2021). Pengembangan Media Pembelajaran Flipbook Digital di Sekolah Dasar. *Edukatif: Jurnal Ilmu Pendidikan*, *3*(5), 2819–2826. Retrieved from https://www.edukatif.org/index.php/edukatif/article/view/1012

Sugiyono. (2015). *Metode Penelitian Kualitatif Kuantitatif dan R&D*. Bandung: Alfabeta.

Wati, H. W., & Susilawati, S. A. (2019). *Pengembangan Media Pembelajaran Video Animasi Berbasis Adobe After Effect dalam Materi Banjir Siswa Kelas VII SMP Negeri 1 Weru Kabupaten Sukoharjo Universitas Muhammadiyah Surakarta*. Surakarta: