DEVELOPMENT OF PICTURED STORY BOOKS TO IMPROVE NUMERATION LITERACY AMONG PRIMARY SCHOOL STUDENTS AT SDN 002 TEBING CLASS III

Tasya Elmita, Fitria Meilina, Zulfiana Dessyka Putri, Anggri Dwi Nata
Program Studi Pendidikan Guru Sekolah Dasar Fakultas Keguruan dan Ilmu Pendidikan Universitas Karimun
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Abstract

This research aims to develop and test the feasibility of picture story books as a medium for increasing numeracy literacy in class III students at SDN 002 Tebing. The research approach used is Research and Development (R&D) with the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). Data were collected through observation, interviews, and questionnaires conducted by a team of media experts, a team of material experts, teacher responses and testing the effectiveness of picture story books using pretests and posttests. The results of the development showed that the designed picture story book met the validity criteria of media experts and got an average score of 87% with a very feasible category. Material experts got an average score of 90% with a very feasible category and teacher response assessment got an average score of 89.333% with a very feasible category. Then the results of the effectiveness test using the N-Gain formula with a small group trial with an average score of 0.714 with a high category then a large group trial got an average score of 0.77 with a high category. It can be concluded that the developed picture story book is very feasible and effective as a learning medium to improve the numeracy literacy of grade III students at SDN 002 Tebing.

Keywords: *Picture Story Books, Numeracy Literacy, Elementary School Students, Media Development.*

Abstrak

Penelitian ini bertujuan untuk mengembangkan dan menguji kelayakan buku cerita bergambar sebagai media untuk meningkatkan literasi numerasi pada siswa kelas III di SDN 002 Tebing. Pendekatan penelitian yang digunakan adalah Research and Development (R&D) dengan model ADDIE *(Analysis, Design, Development, Implementation, Evaluation)*. Data dikumpulkan melalui observasi, wawancara, dan kuesioner yang dilakukan oleh tim ahli media, tim ahli materi, respon guru serta menguji keefektifitas buku cerita bergambar menggunakan *pretest* dan *posttest.* Hasil pengembangan menunjukkan bahwa buku cerita bergambar yang dirancang memenuhi kriteria validitas ahli media mendapatkan nilai rata-rata 87% dengan kategori sangat layak. Ahli materi mendapat nilai rata-rata 90% dengan kategori sangat layak dan penilaian respon guru mendapatnya nilai dengan rata-rata 89,333% dengan kategori sangat layak. Kemudian hasil uji efektivitas dengan menggunakan rumus *N-Gain* dengan uji coba kelompok kecil dengan nilai rata-rata 0,714 dengan kategori tinggi kemudian uji coba kelompok besar mendapat nilai rata-rata 0,77 dengan kategori tinggi. Dapat disimpulkan bahwa buku cerita bergambar yang dikembangkan sangat layak dan efektif

sebagai media pembelajaran untuk meningkatkan literasi numerasi siswa kelas III di SDN 002 Tebing.

Kata Kunci: Buku Cerita Bergambar, Literasi Numerasi, Siswa Sekolah Dasar, Pengembangan Media

I. INTRODUCTION

According to (Suriadi et al., 2021), education is a valuable lesson for students, enabling them to become more critical thinkers, enabling them to develop the character desired by their teachers and parents. In Indonesia, specifically Law No. 20 of 2003 concerning the National Education System, it is stated that numeracy literacy is a skill that must be mastered by students at all levels of education. This law emphasizes the importance of developing literacy and numeracy skills as an integral part of primary and secondary education. Literacy and numeracy should begin to be taught to students at the elementary school level. According to Hidayati et al., (2023), literacy and numeracy skills serve as the foundation for students to learn material in other subject areas at school. At the elementary school level, literacy and numeracy skills must be taught optimally so that students do not experience difficulties in understanding more complex subject areas and also serve as capital for students to continue their education at a higher level. However, in reality, numeracy literacy in Indonesia still requires special attention. This can be caused by various factors, one of which is a lack of conceptual understanding, especially in mathematics learning.

Numeracy literacy refers to a person's ability to use their reasoning skills to analyze and interpret a statement (Perdana & Suswandari, 2021). Numeracy literacy can be defined as the ability to use numbers, symbols, data, and knowledge and skills to solve everyday life problems (Anderha & Maskar, 2021). Literacy skills are students' abilities to analyze and interpret information and understand statements conveyed in reading material (Rahmasari et al., 2022). The goals of numeracy literacy are: 1) To hone and strengthen students' numeracy knowledge and skills in interpreting numbers, data, tables, graphs, and diagrams. 2) To apply numeracy knowledge and skills to solve problems and make decisions in everyday life based on logical considerations. 3) To develop and strengthen Indonesia's human resources capable of managing natural resources (SDA) and thus becoming competitive. 4). Students have the knowledge and skills to plan and manage activities well in daily life.

The objectives of this study are to determine the suitability of picture story books for third-grade elementary school students according to Material Experts, to determine the

suitability of picture story books for school students according to Design Experts, to determine teachers' responses to the effectiveness of picture story books and to determine the effectiveness of picture story books on the numeracy literacy of third-grade elementary school students.

II. THEORITICAL STUDIES

Numeracy literacy means knowledge and skills to (1) obtain, interpret, use, and communicate various kinds of numbers and mathematical symbols to solve practical problems in various life contexts; (2) analyze information presented in various forms to make decisions. Numeracy skills can be used as capital for students in mastering other subjects (Inayah, A. N. A., et al. (2020). Numeracy literacy skills are related to applying basic knowledge, principles and mathematical processes to problems in everyday life, for example understanding problems presented in tables or diagrams, trade and others (Rohim, Dhina, et al., 2021:59). Picture story books can be categorized as suitable for use as teaching and learning tools for lower grade students according to Nurjanah & Hakim in (Siwi & Elvira, 2020:996).

III. RESEARCH METHODS

This study uses a Research and Development (R&D) approach. Research and Development (R&D) is a research method used to produce a specific product and test its effectiveness (Sugiyono, 2019). The development design used in this study is ADDIE. The stages of ADDIE design development consist of analysis, design, development, and implementation.

The population in this study was 85 third-grade students at SD Negeri 002 Tebing. This study used a non-probability sampling technique with purposive sampling. Purposive sampling is a technique for determining samples based on specific considerations (Nata & Kurniawan, 2024). At SD Negeri 002 Tebing, the third-grade students consist of three classes: IIIA, IIIB, and IIIC. The sample size for this study was 7 students for the small-group test and 10 students for the large-group test.

This study uses several instruments, namely: Interviews are a form of data collection technique when conducting preliminary studies when identifying problems that need to be researched, observations are used as a reference for observing learning activities, questionnaires or surveys are data collection techniques that involve providing a series of

questions or written statements to respondents so that they answer and questions to determine the level of understanding of respondents or students related to the products that have been made. The data analysis technique used to process the development results data, namely N-Gain, is obtained from the comparison of scores between the initial test (pretest) and the final test (posttest).

IV. RESEARCH RESULTS

A. DESCRIPTIVE RESEARCH RESULTS

This research was conducted using the ADDIE research model, namely: (1) Analysis, (2) Design, (3) Development, (4) Implementation, (5) Evaluation. However, this study only reached the fourth stage, namely Implementation.

1. Analysis

In the analysis stage, observations were conducted to obtain information regarding the development of picture storybooks that meet students' needs, with the aim of improving numeracy literacy in elementary school students. After conducting observations, the researcher conducted interviews. The purpose of these interviews was to determine the availability of picture storybooks to improve numeracy literacy in elementary school students.

2. Design

At this stage, the researcher began designing and developing a product in the form of a picture storybook to improve numeracy literacy in elementary school students. Product design began with determining the product's content, including illustrations and selecting appropriate and attractive colors for students.

3. Development

The development stage of this research included the creation of a picture storybook to improve numeracy literacy in elementary school students. This stage is also carried out to assess the developed product.

a. Validation by Media Experts:

Table 1. Media Expert Validator Assessment

Jumlah Pernyataan	Validator Pedia	
	1	**2**
17	80%	94%
Keterangan	Layak	Sangat Layak

Total Keseluruhan		87%
Keterangan	Sangat Layak	

The assessment by media experts from validator 1 obtained an average score of 80%, with a rating of "adequate." Validator 2 obtained an average score of 94, with a rating of "very appropriate." The overall score from media experts from validator 1 and validator 2 was 87%, with a rating of "very appropriate."

b. Validation by Material Experts:

Table 2. Assessment by Material Expert Validators

Jumlah Pernyataan	Validator Pedia	
	1	2
10	90%	90%
Keterangan	Sangat Layak	Sangat Layak
Total Keseluruhan	90%	
Keterangan	Sangat Layak	

The assessment by material experts from validator 1 obtained an average score of 90%, with a rating of very appropriate. Validator 2 obtained an average score of 90%, with a rating of very appropriate. The overall score of material experts from validator 1 and validator 2 was 90%, with a rating of very appropriate.

c. Teacher Responses

Table 3: Teacher Response Assessments

Jumlah Pernyataan	Respon Guru		
	1	2	3
10	84%	92%	92%
Keterangan	Sangat Layak	Sangat Layak	Sangat Layak
Total Keseluruhan		89,333%	
Keterangan		Sangat Layak	

The teacher response assessment from validator 1 obtained an average score of 84%, with a rating of "adequate." Validator 2 obtained an average score of 92%, with a rating of "very appropriate." Validator 3 obtained an average score of 92%, with a rating of "very appropriate." The overall score for teacher response assessments was 89.333%, with a rating of "very appropriate."

4. Implementation

The implementation stage used a pilot test. A pretest and posttest were distributed with 10 questions. Prior to the pilot test, students were given a pretest with 20 questions related to the designed product, a picture storybook to improve numeracy literacy. After the pretest, students were given treatment or explanations related to the picture storybook three times. Next, students were given a posttest with the same 20 questions as the pretest, but presented in a random order. The pretest and posttest trials were conducted by researchers to determine the effectiveness of the picture storybook.

a. Small-Scale Pilot Test

A small-scale pilot test was conducted with 7 third-grade elementary school students. The N-gain score results for each student on a small scale showed moderate to high scores. Two students were in the moderate category, with N-gain scores of 0.5 and 0.7, respectively. Five other students received high scores, with scores ranging from 0.8 to 1. The overall N-gain score for the small-scale trial was 0.714, indicating a high score.

b. Large-Scale Trial

The large-scale trial was conducted on 10 third-grade elementary school students. The N-gain score results for each student on a large scale showed moderate to high scores. One student received a moderate score with a score of 0.5. The other nine students received a high score with an N-gain score of 0.7 to 1. The overall N-gain score for the large-scale trial was 0.77, indicating a high score.

B. DISCUSSION

The research designed by the researcher involved a picture storybook to improve numeracy literacy in elementary school students at Tebing 002, consisting of 7 students in small groups and 10 students in large groups. This product development used the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model, but the researcher only took four stages. In the analysis stage, the researcher conducted field analysis through interviews with classroom teachers to identify students' learning challenges and needs. The goal was to ensure the supporting media developed by the researcher met students' needs and helped improve numeracy literacy in elementary school students.

The second stage, design, involved the researcher designing the basic form of the media to be developed. The initial steps in designing a research product included compiling the

product's components, including the cover design, foreword design, table of contents design, story content design, and author biographical information design.

The third stage, development, involved product development and product assessment by validator experts. Validators in this study included two material experts, two media experts, and three teacher responses. The media expert's assessment categorized the picture storybook as very appropriate, and the material expert's assessment categorized it as very appropriate for improving numeracy literacy in elementary school students.

In the fourth stage, implementation, researchers conducted a small group trial with seven students and a large group trial with ten students to assess the effectiveness of the picture storybook in improving numeracy literacy in elementary school students. The results of these trials were categorized as very appropriate. The effectiveness of picture storybooks can help students more easily express their thoughts in language because the images will inspire and motivate them to learn, especially when reading.

V. CONCLUSION

The results from the material validator team got an average of 90% with a very decent score, the results from the media validator team got a score of 87% in the very decent category, the results from the teacher response questionnaire also got a score of 89.333% with a very decent score. In conclusion, picture story books are very suitable for improving the numeracy literacy of students at SDN 002 Tebing. The test results for the effectiveness of picture story books have gone through the pretest and posttest trial stages, at the pretest-posttest calculation stage there was an increase and improvement with small-scale trials with an average of 0.714. Based on the formula percentage, N-gain is in the high category and in large-scale trials with an average of 0.77. Based on the percentage of the N-gain formula, it is in the high or effective category for increasing the numeracy literacy of class III students at SDN 002 Tebing.

REFERENCES

Anderha, R. R., & Maskar, S. (2021). Pengaruh Kemampuan Numerasi Dalam Menyelesaikan. *Jurnal Ilmiah Matematika Realistik*, *2*(1), 1–10.

Hidayati, V. R., Ermiana, I., Haryati, L. F., Rosyidah, A. N. K., & Anar, A. P. (2023). Sosialisasi Pentingnya Pembelajaran Literasi dan Numerasi Sebagai Upaya Pencegahan

Learning Loss Akibat Pandemi. *Jurnal Altifani Penelitian Dan Pengabdian Kepada Masyarakat*, *3*(1), 148–154. https://doi.org/10.25008/altifani.v3i1.344

Inayah, A. N. A., dkk. (2020). Kemampuan Literasi Numerasi untuk Mengembangkan Pemahaman Konsep dalam Pembelajaran Matematika. *Jurnal Ilmiah Mahasiswa Pendidikan Matematika, 2(2), 106-113*

Nata, A. D., & Kurniawan, E. (2024). *Metodelogi Penelitian: Konsep Dasar Penelitian dalam Bidang Pendidikan* (Sisi Febria Agami (ed.); 1st ed.). Mitra Cendekia Media.

Perdana, R., & Suswandari, M. (2021). Numerical Literacy in Thematic Learning for Upper Grade Elementary School Students. *Absis: Mathematics Education Journal*, *3*(1), 9–15.

Rahmasari, U. D., Nugraha, A., & Lidinillah, D. A. M. (2022). Persepsi Guru Mengenai Pentingnya Kemampuan Mengembangkan Soal Tes Berbasis Literasi dan Numerasi di Sekolah Dasar. *Journal of Elementary Education*, *5*(6), 1105–1112.

Rohim, D. C., Septina. R., Inggrid., D. G. 2021. Konsep Asesmen Kompetensi Minimun Untuk Meningkatkan Kemampuan Literasi Numerasi Siswa Sekolah Dasar. *Jurnal Varidika.*

Siwi, P & Apriliana (2020). Pengembangan Media Pembelajaran Buku Cerita untuk Meningkatkan Minat Membaca Siswa Sekolah Dasar. *Jurnal Basicedu.* 4(4), 999-1003

Sugiyono. (2019). *Metode Penelitian Kuantitatif, kualitatif, dan R&D* (Edisi 27). ALFABETA.

Suriadi, H. J., Firman, F., & Ahmad, R. (2021). Analisis Problema Pembelajaran Daring Terhadap Pendidikan Karakter Peserta Didik. *Edukatif : Jurnal Ilmu Pendidikan*, *3*(1), 165–173. https://doi.org/10.31004/edukatif.v3i1.251

UU NO 20 TAHUN 2003 TENTANG SISTEM PENDIDIKAN NASIONAL, Pub. L. No. 20, 3 1 (2003).