Lentera
JURNAL ILMIAH KEPENDIDIKAN

Development of a Science Pocket Book Based of Mind Mapping for Class V Primary School

Ridho Agung Juwantara[1*], Ambyah Harjanto[2], Felicia Paras Puteri[3]
[1,2,3]STKIP PGRI Bandar Lampung
[1*]ridhoaj57@gmail.com, [2]cambyasoul@gmail.com, [3]feliciaput19@gmail.com

How to cite (in APA Style): Juwantara, Ridho Agung; Harjanto, Ambyah; Puteri, Felicia Paras. (2023). Development of a Science Pocket Book Based of Mind Mapping for Class V Primary School. *LENTERA: Jurnal Ilmiah Kependidikan*, 16 (2), pp. 339-346.

Abstract: The idea for developing this mind mapping-based pocket book originated from the unavailability of science learning resources that encourage and facilitate students to study independently outside of class hours. Mind mapping based pocket books are important for students to study independently because they are relatively small in size and include a mind map. This research aims to develop a pocket book based on mind mapping, to determine feasibility, response and effectiveness. This research is development research using the ADDIE model. The research results showed that the average validity score for the mind mapping based pocket book from the three validators was 93% in the very feasible category. The response assessment results from educators obtained a score of 93%, and from students it was 88.65%, both of which fell into the very appropriate category. The results of the product trial prove that this product development is effective and in accordance with the average score of 96% of the 10 students who took part in the product trial. This means that the pocket book based on mind mapping for science subjects is effective in maximizing the learning outcomes of class V students.
Keywords: *pocketbook, science, mind mapping*

INTRODUCTION

Education will be successful if the components in it are fulfilled. One important component in education is the educational interaction that occurs between teachers, students and learning materials. Teacher competency, student readiness and availability of learning materials are very important in realizing success in education. If the interaction between teachers, students and learning materials goes well, then education will run well too. The success of learning depends on the availability of material. If the material is available well, learning activities have a big chance of being successful. However, classroom learning between teachers, students and materials is usually limited to a schedule. Therefore, there is a great need for learning resources that can support students' learning

processes outside of class hours, namely independent learning to increase knowledge and strengthen students' understanding of the material, especially science. Science material has scientific characteristics and really requires students' Critical-Analytical abilities, Dewi (2021:3). Science learning in elementary school according to Bundu (in Dewi, 2021: 8) has three main components, namely: scientific process (observing, classifying, predicting, designing, experimenting), scientific products (principles, concepts, laws, theories) and scientific attitudes (taste curious, careful, objective, and honest).

Based on the phenomenon that occurred at Fransiskus Pringsewu Elementary School, learning resources that support science are not yet available from teachers or schools. So the main concern is the development of learning resources or media that facilitate students to study science independently, one of which is a pocket book. According to Ranintya Meikhana (2015: 16), a pocket book is a small book containing written pictures in the form of explanations that can direct or provide instructions regarding knowledge and have a practical impression. In order to add to the science learning experience and adapt it to the material *"Ekosistem dan jaring-Jaring Makanan di Lingkugan Sekitar"*, So the researcher conveyed the idea of developing a Mind Mapping-based pocket book to be used as a complementary reference book for students which is expected to be used to support students' independent learning outside of class hours. Swadarma (2013:2), Mind mapping is a technique for utilizing the whole brain by using visual images and other graphic infrastructure to form impressions.

Buzan (in Masita, 2018:77) explains that mind mapping is the easiest way to place and retrieve information in the brain by making a route map regarding the information obtained by students. With a mind map, long information can be made into a form that is more enjoyable to read. Colorful, orderly, can be seen as a whole so it is easy to remember. From this analysis, mind mapping is suitable for use in science learning in elementary schools. This research was inspired by research by Rahayu Sulistiyo Wati (2023:3908) that the development of a pocket book on social studies material can have a level of validity, practicality and learning effectiveness.

This research will adopt the development methodology used by Najuah (202:1658) in developing Module teaching materials. Seeing the importance of this development idea, the aim of this research is 1) to determine the feasibility of a pocket book based on mind mapping for class V science subjects whose validity was tested by material experts, language experts and media experts. 2) to determine students' responses to the mind mapping-based pocket book that was developed. 3) effectiveness in implementing science learning.

METHOD

The surgical tool used in this development is the ADDIE (RnD)model. According to Payne in Wicaksono (2022: 282), the ADDIE model presents an ordered process where progress is directed and/or from one phase to the next, which

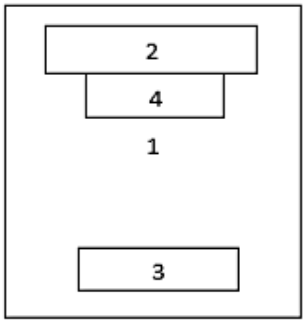
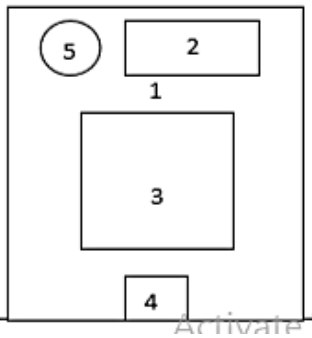
consists of five steps, namely Analyze, Design, Development, Implementation and Evaluation. The data collection tools used were questionnaires and documentation, (Sukma 2020:318). The data analysis technique used in this research was qualitative data analysis by describing opinions and suggestions obtained from the questionnaire sheet, (Ridho, 2022: 20).

RESULT AND DISCUSSION

Analysis Stage

At the analysis stage, activities carried out include (1) curriculum analysis (2) analysis of student needs (3) analysis of science subject matter (4) formulating development goals.

Design Stage

No	Halaman	Rancangan Halaman	Keterangan
1	Sampul depan		1. Sampul *full colour* 2. Judul Buku Saku 3. Nama Penyusun 4. Materi Buku
2.	Kata Pengantar		1. Background 2. Judul (Kata Pengantar) 3. Isi 4. Halaman buku 5. Gambar kartun

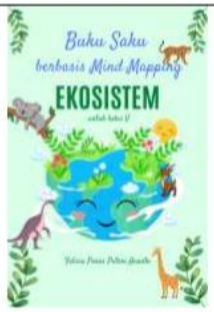
Picture 1.
Initial design of a Pocket Book based on Mind Mapping

This stage carries out the process of selecting media, selecting formats, and initial design of a Mind Mapping based pocket book. At the design stage, the Mind Mapping-based pocket book was created using the process: 1) The material and questions in the Mind Mapping-based pocket book were summarized from the reference book Theme 5: Ecosystem. 2) The material is prepared, designed and presented using the Canva application (premium/paid) so that the quality of the image choices and features are more attractive. 3) After completing the entire pocket book design, the final step that must be done is converting it into PDF

format. 4) A pocket book based on mind mapping is printed for the purposes of material, language and media validation as well as product testing.

Development Stage

Making pocket books based on mind mapping includes printing and binding the product according to the design or framework. Validation is carried out through questionnaires for language, material and media experts. Editing is done to avoid errors in the mind mapping based pocket book, for example errors in content, language or presentation. The following is the final result of the mind mapping based pocket book product that was developed:



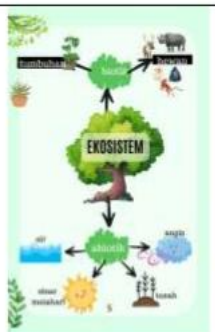
a. Halaman sampul

b. Kata Pengantar

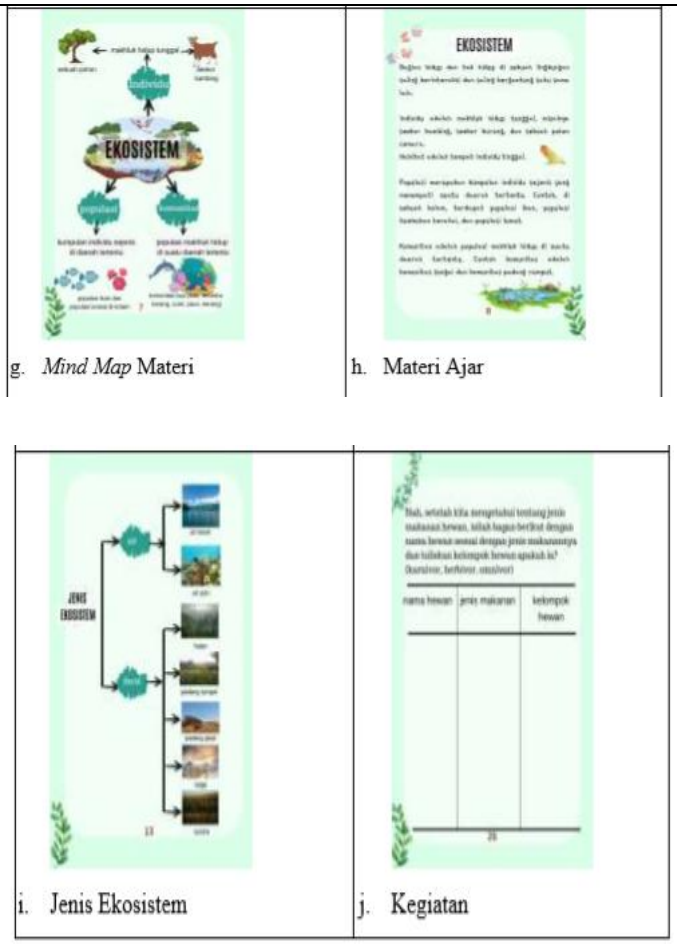
c. Daftar isi

d. Kompetensi Dasar dan Indikator

e. Pendahuluan Materi



f. *Mind Map* Materi



g. *Mind Map* Materi h. Materi Ajar

i. Jenis Ekosistem j. Kegiatan

Picture 2.
Product developed (Pocket Book)

Table 1. Percentage of Media Due Tests by Experts (Validators)

Validator	Aspek Penilaian	Nilai	Nilai Maks
Ahli Materi	Kelayakan Isi	51	55
	Kelayakan Kebahasaan	28	30
Total		**92,94%**	**100%**
Ahli Bahasa	Kelayakan Kebahasaan	27	30
Total		**90 %**	**100%**
Ahli Media	Kelayakan Fitur	34	35
	Kelayakan Grafik	43	45
	Kelayakan Warna	40	45
Total		**93,6 %**	**100 %**

Implementation Stage

A trial was carried out to determine students' responses to the mind mapping-based pocket book. Data was collected using questionnaires, and the results were obtained as below.

Table 2. Test response data from V A students at Fransiskus Pringsewu Elementary School

No	Aspek yang dinilai	Rata-rata	Persentase	Kriteria
1	Kelayakan isi	4,55	91%	Sangat Layak
2	Kelayakan Kebahasaan	4,38	87,6%	Sangat Layak
3	Kelayakan penyajian	4,52	90,4%	Sangat Layak
4	Kelayakan kegrafikan	4,29	85,8%	Sangat Layak
Rata-rata persentase		88,65%		

Based on the table of small group trial results above, product feasibility data was obtained from the students' side. Data from students shows that the content appropriateness aspect received an average score of 4.55 with a percentage of 91%, the linguistic appropriateness aspect received an average score of 4.38 with a percentage of 87.6%, and the presentation appropriateness aspect received an average score of 4 .52 with a percentage of 90.4%, while the graphic feasibility aspect got an average score of 4.29 with a percentage of 85.8%. So getting an average score of 4.43 with a percentage of 88.65% falls into the very feasible criteria. The trials carried out in class V A of Fransiskus Pringsewu Elementary School were carried out well. Students were very enthusiastic and showed interest when given the pocket book. These results are in accordance with the characteristics of a good pocket book according to Azhar Arsyad in Novita (2017: 49), pocket books are usually made attractive. There are several ways to attract attention to text-based learning resources such as pocket books, namely by providing attractive colors, letters and shapes.

Evaluation Stage

The overall evaluation stage was carried out on the pocket book product based on mind mapping to measure the achievement of product development goals and revise all kinds of constructive input for the perfection of this Pocket Book. From the overall average percentage obtained, the mind mapping based pocket

book that was developed received the "Very Eligible" criteria and was ready for dissemination. The results of product trials in learning with students also prove that the development of this mind mapping-based pocket book is effective for use according to the average score obtained of 96 out of a maximum score of 100 which came from 10 students who took part in the product trial. All students achieve the minimum score and all complete. This means that a pocket book based on mind mapping for science subjects is also able to maximize student learning outcomes.

CONCLUSSION

The pocket book based on mind mapping for science subjects that has been developed is considered to meet the validity requirements. A pocket book based on mind mapping is considered very suitable by material experts, language experts and media experts. Then a pocket book based on mind mapping was also proven to be effective in maximizing elementary school students' science learning outcomes.
The suggestions given regarding the development of a pocket book based on mind mapping are as follows: students can study independently outside of class hours and apply the concept of mind mapping. To educators, this mind mapping-based pocket book trial can be used as a trigger for innovation related to new learning resources.

REFERENCES

Ali, Fauzan Irsyad. 2019. *Pengembangan Media Buku Saku Berbasis Mind Mapping untuk Meningkatkan Hasil Belajar IPS Kelas IV B SD Negeri Purwoyoso 04 Kota Semarang*. Skripsi. Semarang. Universitas Negeri Semarang.

Dewi, Putu Yulia Angga, dkk. 2021. *Teori dan Aplikasi Pembelajaran IPA SD/MI.* Aceh: Yayasan Penerbit Muhammad Zaini.

Juwantara, Ridho Agung. (2022). Abdau: Jurnal Pendidikan Madrasah Ibtidaiyah Vol 5, No 2 (2022): Desember. Peningkatan Hasil Belajar Akidah Akhlak Melalui Penggunaan Media Audio Visual Pada Peserta Didik IV MIN 7 Bandar Lampung

Masita, Mariana dan Wulandari, Desi. 2018. *Pengembangan Buku Saku Berbasis Mind Mapping pada Pembelajaran IPA*. Jurnal Kreatif. Volume 8 (2).

Meikhana, Ranintya dan Kriswanto, Erwin Setyo. 2015. *Pengembangan Buku Saku Pengenalan Pertolongan Perawatan Cedera Olahraga untuk Peserta didik Sekolah Menengah Pertama.* Jurnal Ilmu Keolahragaan. Volume 11 (1).

N Najuah, Ricu Sidiq, & Pristi Suhendro Lukitoyo. (2021). The Development Electronic Module of History using ADDIE Model. International Journal of Educational Research and Social Sciences (IJERSC), 2(6), 1658–1663. https://doi.org/10.51601/ijersc.v2i6.168.

Novita, Wanda Dwi. 2017. *Pengembangan Media Buku Saku pada Pembelajaran IPA di Kelas V SD Negeri Glonggong Pati.* Skripsi. Semarang. Universitas Negeri Semarang.

Sukma. 2020. Effectiveness Of Outdoor Learning Optimization Program In Learning Social Studies. JPI, Vol. 9 No. 2, June 2020p-ISSN: 2303-288X, e-ISSN: 2541-7207 DOI: 10.23887/jpi-undiksha.v9i2.19160Jurnal Pendidikan Indonesia (JPI).

Swadarma, Doni. 2013. *Penerapan Mind Mapping dalam Kurikulum Pembelajaran.* Jakarta: PT Elex Media Komputindo.

Tim Redaksi KBBI PB. 2008. *Kamus Besar Bahasa Indonesia (Edisi Keempat*). Jakarta: Pusat Bahasa Departemen Pendidikan Nasional.

Wati, Rahayu Suisttyo. Pendas : Jurnal Ilmiah Pendidikan Dasar, ISSN Cetak : 2477-2143 ISSN Online : 2548-6950 Volume 08 Nomor 01, Juni 2023

Wicaksono, Andri. (2022). *Metodologi Penelitian Pendidikan*. Yogyakarta. Garudhawaca.

Ysiyar Jayantari. (2020). *Statistik Deskriptif*. Yogyakarta. K-Media.

Ysiyar Jayantri. (2019). *Belajar dan Pembelajaran Di Sekolah Dasar*. Yogyakarta. K-Media.