

FEASIBILITY OF THE *BETANGAS* CONCOCTION HANDBOOK FOR TREATING VERTIGO AS A LEARNING MEDIA FOR NERVOUS SYSTEM SUBMATERIALS

Gisa Grasilla^{1*}, Ruqiah Ganda Putri Panjaitan², Hayatul Fajri³, & Kurnia Ningsih⁴

^{1,2,3,&4}Department of Biology Education, Faculty of Teacher Training and Education, Tanjungpura University, Prof. Dr. H. Hadari Nawawi Street, Pontianak, West Kalimantan 78124, Indonesia

*Email: grasillagisa@gmail.com

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ABSTRACT: Biology is a subject about living things and their relationship with the nature environment. One thing that can support the biology learning process is a media. A pocket book is a medium that is small, easy to carry and can be read at any time. This study aims to determine the feasibility of the *betangas* herb of pocket book media for treating vertigo. The pocketbook is tested for suitability by five validators. There are four aspects assessed namely, format, content, language and graphics. The research results show the value for the format aspect is 1, the content aspect is 1, the language aspect is 1, and the graphic aspect is 1. The results of the validation show a CVI value of 1. So it can be concluded that the *betangas* herb pocket book media for treating vertigo as a learning medium for nervous system sub-materials can be declared feasible.

Keywords: *Betangas*, Feasibility, Nervous System, Pocket Book, Vertigo.

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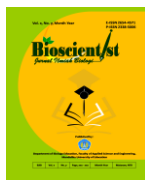


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INTRODUCTION

Education is a process of guidance and learning for individuals to grow into human beings who can be independent, responsible, creative, knowledgeable, healthy and have noble character both from a physical and spiritual aspect and also education improves personal quality to become intelligent and characterful (Adyani et al., 2015; Arzak & Prahani, 2023; Fadilah et al., 2015; Inanna, 2018). One of the efforts made to improve the quality of education in Indonesia is by improving the education system (Panjaitan et al., 2019). Biology is a branch of natural science that studies living things and the surrounding environment. Biology learning aims to provide learning experiences and understand the concepts of natural phenomena related to living creatures, so that meaningful learning can be obtained (Aryani & Nugroho, 2022; Panjaitan et al., 2019).

Learning media is a supporting tool in the learning process that makes it easier for educators to convey material to students effectively and efficiently to improve the quality of learning (Fahma et al., 2018; Hanum et al., 2017; Panjaitan et al., 2021; Panjaitan et al., 2022). Learning media can help in the learning



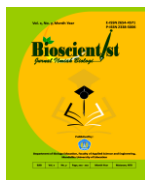
process. Choosing the right learning media needs to be done, so that the learning media used will have an impact on achieving learning objectives (Babincakova & Bernard, 2020). The use of learning media is expected to create a learning atmosphere that further enriches students' learning experiences, because learning and education are powerful agents of change to improve human abilities (Ahmad et al., 2023; Baharuddin, 2015; Hanifah et al., 2019).

A pocket book is a book that includes material, is small, light, easy to carry anywhere, and can be read at any time. The use of pocket books by students can benefit educators and students in finding information without wasting a lot of time to find out the essence of the information (Suharni & Baharsyah, 2020; Yuliani & Herlina, 2015). Pocket books can be used as media to convey information by reading short descriptions using attractive fonts and backgrounds (Khulafa & Santosa, 2018). Pocket books can be used as media to convey information by reading short descriptions using attractive fonts and backgrounds (Panjaitan et al., 2019; Sih & Martini, 2019). Learning media is able to explain learning material and information to students. Specifically for benefits as medicinal plants, local names, pictures, classification, descriptions, benefits and how to use the plants will be provided (Wahid, 2018). Efforts made to develop interest in reading include creating or designing teaching materials for students who like interesting reading with little description and lots of pictures or colors (Wartini et al., 2022). Motivation and energy from educators supports the learning process (Sampelolo & Dominikus, 2022).

Based on the results of interviews with the schools of SMA Negeri 7 Pontianak, SMA Negeri 1 Singkawang, and SMA Negeri 2 Singkawang, these three schools still need effective and innovative learning media on the sub-material of the nervous system. Of the three schools interviewed, three of them have not used innovative conventional media, all three of them use digital media which can still be hampered by electricity which may turn off during learning and cause learning to be ineffective. Pocket books were chosen because they are small and light in size which students can read anywhere and anytime without any problems. The pocket book that was developed contains nervous system sub-materials and additional information on types of *betangas* plants to treat vertigo. The aim of this research is to determine the feasibility of a pocket book containing *betangas* concoction to treat vertigo. Through this pocket book, students can learn more about the potential of medicinal plants in the Singkawang City area, West Kalimantan, and can preserve them and make good use of them.

METHODS

Research on the feasibility of pocket books uses research and development (R&D) methods with the Borg and Gall development model in Sugiyono. In this research, the stages of the development model used. Referring to Sugiyono (2017), the steps consist of: 1) potential and problems; 2) information collection; 3) product design; 4) design validation; 5) design revision; 6) product creation; 7) usage trials; 8) product revisions; 9) main field trials; 10) product revisions; 11) operational field trials; 12) product revisions; and 13) socialization and implementation. This research has only reached stage 6, because this research is



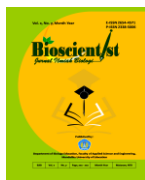
limited development research making a pocket book goes through several stages, namely, exploring the potential and problems that occur, the potential obtained is that the *betangas* plant to treat vertigo is considered a phenomenon that can reduce the use of chemical drugs and is supported by the medium of a small and attractive pocket book so that it attracts the interest of readers and the public. The existing problem is that people still use chemical drugs to treat vertigo. Next, we examine the collection of information from the field and literature studies related to the sub-materials of the nervous system, *betangas*, vertigo, medicinal plants. From the information obtained, we then design the contents of the pocket book, starting with determining the title of the pocket book, the components of the pocket book, the editing process, letters, images and colors, then the contents of the pocket book starting with determining the title of the pocket book, the components of the pocket book, the editing process, letters, images and colors, then the contents of the pocket book, namely the plants used in the *betangas* process, identification of *betangas* plants, how to use *betangas*, types of plants used, competency test, and answer key. The next stage is validation of the pocket book design, to determine the suitability of the pocket book. The pocket book validation sheet consists of four aspects, i.e. format aspects, content aspects, language aspects and graphic aspects. The feasibility of the pocket book uses a validation sheet assessed by five validators. Validators are determined based on their expertise in the field of is 3 biology lecturers and 2 biology teachers, and learning, then analysis of the validation results is carried out with reference to validity of Lawshe (1975).

RESULTS AND DISCUSSION

This pocket book research is the result of the development of *betangas* concoction to treat vertigo in Singkawang City, West Kalimantan. The medicinal plants contained in the *betangas* concoction are several types of medicinal plants that have been inherited from generation to generation. The pocket book contains local names, classification, descriptions, parts used, and pictures of plants. The pocket book validation results are presented in Table 1.

Table 1. Validator Assessment Results of the *Betangas* Potion Handbook for Treating Vertigo.

Aspect	Criteria	Validator					CVR	Information
		1	2	3	4	5		
Format	1. Convenience of carrying a pocket book	4	4	4	4	4	1	Valid
	2. Completeness of the presentation of the pocket book	4	4	3	3	4	1	Valid
	3. Supporting equipment for presenting material	3	3	3	4	4	1	Valid
Content	4. Suitability of the material to the KD, indicators and learning objectives to be achieved	4	4	4	4	4	1	Valid



Aspect	Criteria	Validator					CVR	Information
		1	2	3	4	5		
Language	5. Completeness of material information presented in the pocket book	3	3	4	4	4	1	Valid
	6. The presentation of the material does not violate applicable laws	4	4	4	4	4	1	Valid
	7. The language used in the pocket book is clear, easy to understand, and does not give rise to multiple interpretations	3	3	4	4	4	1	Valid
	8. Conformity of the language in the pocket book with good and correct Indonesian rules	3	3	4	4	4	1	Valid
Graphics	9. Attractive cover design for pocket book	4	3	4	4	4	1	Valid
	10. Clarity of letters (fonts) in pocket book media	3	4	4	4	4	1	Valid
	11. Clarity of images in pocket book	3	3	4	4	4	1	Valid
The value of CVI = 1								Valid

Based on Table 1, the results of the validity analysis obtained from five validators with four aspects and eleven criteria obtained a CVR value of 1 in the valid category. From the CVR results, a CVI value of 1 was obtained in the valid category.

Format Aspect

The format aspect gets a value of 1 in the valid category. The format aspect of the pocket book includes three criteria, namely, ease of carrying the pocket book, completeness of the presentation of the pocket book, and completeness of supporting material presentation (Figure 1). The first criterion, namely ease of carrying a pocket book, received a score of 1 in the valid category. This is consistent with the fact that a pocket book is a small, light book that contains information that is easy to carry anywhere and can be read at any time by students, so that it benefits educators and students in finding information without wasting a lot of time to find out the essence of the information (Asyhari & Silvia, 2016; Suharni & Baharsyah, 2020; Yuliani & Herlina, 2015). The second criterion, namely the completeness of the presentation of the pocket book, received a score of 1 in the valid category. This is appropriate that the completeness of the content of a teaching medium must be fully discussed through presentations, so that students feel they understand a particular field of study, so that it can increase students' motivation and passion in developing abilities and interacting directly with the environment (Daryanto, 2014). The information presented in the pocket book includes nervous system sub-materials such as (Nervous system structure, neuroglia cells, synopsis, nerve impulses, impulse delivery mechanisms, types of nervous system, ears, vertigo, treatment of *betangas*, and plant identification). Specifically for benefits as medicinal plants,

local names, pictures, classification, descriptions, benefits and how to use the plants will be provided. The third criterion, namely the completeness of supporting material presentation, received a score of 1 in the valid category. This is in accordance with the fact that a pocket book must have supporting equipment such as schemes, pictures, illustrations, practice test questions to make it easier for readers to understand the contents of the book, as well as attracting the interest of readers, especially students, to study it, and by adding presentation of material containing concepts and photos obtained. from the research results (Anita et al., 2018; Panjaitan et al., 2019; Sih & Martini, 2019).

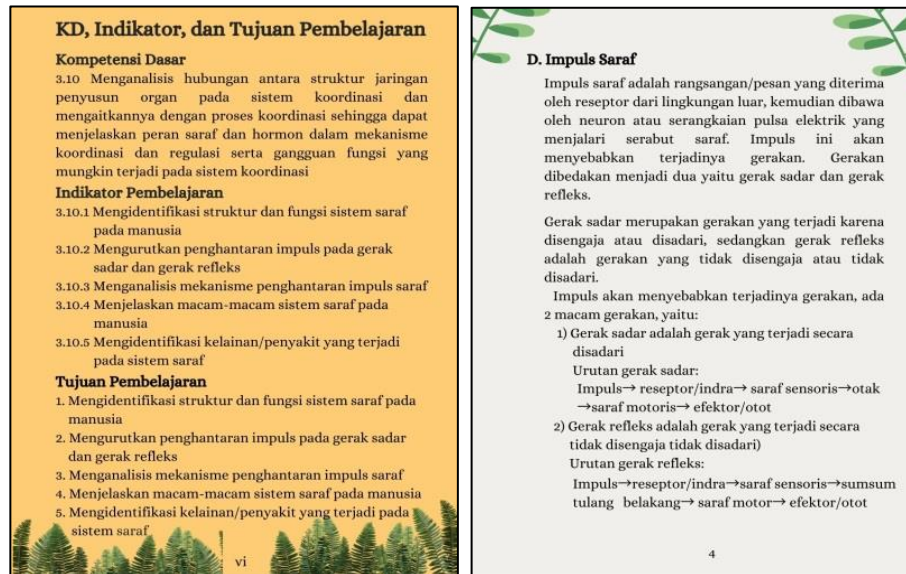


Picture 1. Presentation of Supporting Information (in Bahasa).

Content Aspect

The content aspect received a value of 1 in the valid category. The content aspect of the pocket book includes three criteria, namely, suitability of the material to KD, indicators and learning objectives, completeness of material information in the pocket book, and the presentation of the material does not violate applicable legislation (Figure 2). The first criterion is the suitability of the material with KD, indicators and learning objectives, getting a score of 1 in the valid category. This is appropriate that indicators of competency achievement are formulated based on KD and learning objectives are formulated based on indicators of competency achievement, and the learning media used will have an impact on the achievement of learning objectives (Babincakova & Bernard, 2020). The second criterion, namely the completeness of the material information in the pocket book, received a score of 1 in the valid category. This is in line with the fact that the completeness of the information that has been presented can support the explanation of the concept so that it becomes clearer, so that the material can be conveyed well (Djannah et al., 2020; Wulandari et al., 2020). The third criterion, namely that the material presented does not violate applicable legislation, gets a score of 1 in the valid category. This is in line with education

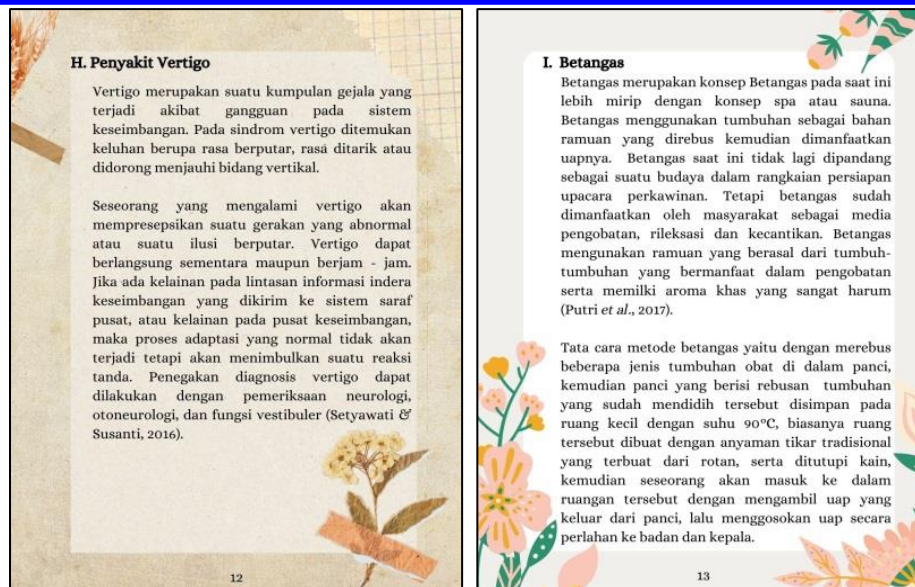
must be based on certain foundations or principles, because education is the main pillar in the development of humans or national society (Kallang, 2017).



Picture 2. Presentation of Material Suitability with KD and Learning Objectives and Completeness of Information (in Bahasa).

Language Aspect

The language aspect gets a value of 1 in the valid category. The language aspect of the pocket book includes two criteria, namely, the language used is clear, easy to understand, and does not have multiple interpretations, and the suitability of the language in the pocket book with good and correct Indonesian language rules (Figure 3). The first criterion, namely, the language used is clear, easy to understand, and does not have multiple interpretations, getting a score of 1 in the valid category. It was previously stated that the appropriate use of language and sentences in pocket books can help readers understand the meaning and learn the information that has been presented, so as not to give rise to multiple interpretations (Nuraini & Waluyo, 2021; Panjaitan et al., 2021). The second criterion, namely, the suitability of the language in the pocket book with good and correct Indonesian language rules, received a score of 1 in the valid category. The use of punctuation marks must be in accordance with good and correct Indonesian language rules (Ferisandi et al., 2018; Kurniawati et al., 2017). The language presentation in the pocket book of *betangas* herb for treating vertigo can be seen in Figure 3.



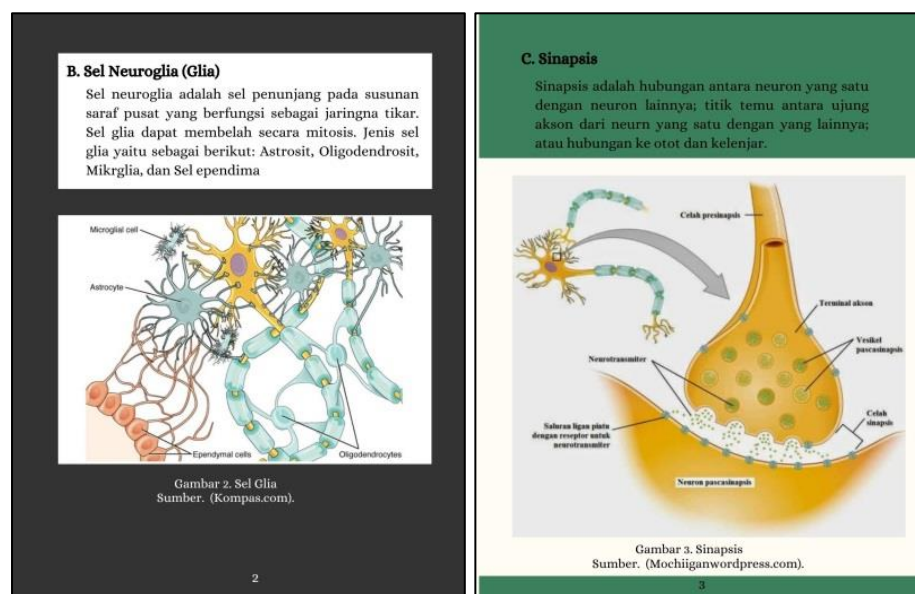
Picture 3. Language Presentation in the Pocket Book of *Betangas* Herb to Treat Vertigo (in Bahasa).

Graphic Aspect

The graphic aspect received a value of 1 in the valid category. The graphic aspect of the pocket book includes three criteria, namely, the attractiveness of the pocket book cover design (Figure 4), the clarity of the letters (fonts) on the pocket book media, and the clarity of the images on the pocket book (Figure 5). The first criterion, namely the attractiveness of the cover design on the pocket book, received a score of 1 in the valid category. It is appropriate to state that a pocket book cover design is believed to have distinctive characteristics that other cover designs do not have, by highlighting a certain theme and also displaying images that match the content (Muktaf, 2016; Riono, 2016). The second criterion, namely the clarity of the letters (fonts) in the pocket book media, received a score of 1 in the valid category. Interesting writing can be impressive and attract the attention of students who receive learning in conveying information by reading using attractive fonts and backgrounds (Valentino, 2019; Gasong, 2018; Khulafa & Santosa, 2018; Rahma, 2019). The third criterion, namely the clarity of the images in the pocket book, received a score of 1 in the valid category. Clarity in the image display aims to ensure that learning material is conveyed effectively and efficiently. Students like interesting reading with a little description and lots of pictures or colors, so that it can help students absorb and understand the content of the material (Embun & Astuti, 2015; Habibati, 2017; Wartini et al., 2022).



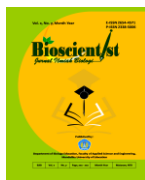
Picture 4. Presentation of Front Cover and Back Cover Designs on Pocket Book (In Bahasa).



Picture 5. Presentation of Pictures in a Pocket Book (In Bahasa).

CONCLUSIONS

Based on the assessment by five validators, the *betangas* herb pocket book for treating vertigo was declared feasible and can be used as a learning medium. There are four aspects of assessment, namely format aspects, content aspects, language aspects and graphic aspects. The results of the assessment of the *betangas* herb pocket book for treating vertigo received a CVR score: 1 for format aspect with valid information, 1 for content aspect with valid information, 1 for language aspect with valid information, 1 for graphic aspect with valid information. From the results of the CVR value, it was found that the CVI value was 1, which means all aspects were valid.



SUGGESTION

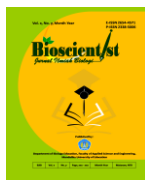
The researcher's suggestion for further research is that there is a need for media in the form of physical or electronic pocket books to support students' needs in the nervous system sub-material, to increase the achievement of the learning process in education.

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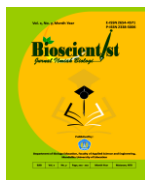
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