

The Development of a Research-Based Lichen Diversity Enrichment Book in the Bukit Barisan Forest Park Area, Karo Regency

Frans Basten Nico Arlin Waruwu¹, Ashar Hasairin² and Mufti Sudiby³
fransbasten19@gmail.com¹, asharhasairin@unimed.com², msud16@gmail.com³

Universitas Negeri Medan¹, Universitas Negeri Medan², Universitas Negeri Medan³, Indonesia

Abstract. The aim of this study is to produce a product in the form of an enrichment book on Lichen Diversity in the Bukit Barisan Forest Park which is appropriate for the general society in enriching knowledge of lichen. The development model used in this research is the Thiagarajan development model which consists of limited of developing. The enrichment book that was developed and was validated by the material expert, that is 93% with very decent. Furthermore, the language aspect has been validated by linguists, that is 91% with very decent. Finally, for the graphic validated by designing expert, that is 91% with very decent. The results of product trials for the developed enrichment book were obtained from three aspects, namely, individual trials that is 92.5% in the very feasible, small group trials that is 90.6% with the very feasible and the limited group trial a score of 91% in the very feasible.

Keywords: Development, Enrichment Book, Lichens, Tahura Bukit Barisan

1 Introduction

Based on the rules of the Republic of Indonesia Number 3 of 2017 concerning the Bookkeeping System, one form of book is in the form of a non-text book, that is an enrichment book ^[1]. Enrichment books contain material that is arranged in depth or broadly in a field of study. Enrichment books are expected to be able to build the nation's civilization by developing knowledge, building, and improving the literacy culture of students and the general society.

One of the materials that can be included in the enrichment book is lichen diversity. Lichen is a symbiotic plant between algae and fungi. Lichens lived widely on the earth's surface starting from tree trunks, rocks or on the soil surface which allows the conditions of life for the lichen itself. The diversity of lichens in Indonesia is still not well explored, most studies of lichen lead to the content of secondary metabolites ^[2] and the use of lichen as a bioindicator of air quality in an area ^[3]. Therefore, the level of recognition of lichen diversity in Indonesia is still relatively low.

The number of lichens in Indonesia reaches 40,000 species ^[4]. Especially in forest areas that have great potential for lichen growth. One of them is the Bukit Barisan Tongkoh Forest Park (Tahura), Karo Regency. Considering that this area functions as a protected forest, the Bukit Barisan Forest Park has a high level of biodiversity ranging from higher plants to lower plants such as lichen.

Considering that exploration of lichen diversity has not been done so much, the opportunity to research lichen diversity is still very wide and has great potential. Another thing that supports is the lack of books that contain material on the introduction and use of lichen. This shows that the exploration of lichen diversity still has great potential and can be used as material in the manufacture and preparation of enrichment books.

2 Methods

The research method used is floating research with a 4-D development model. The 4-D development models ^[5] consists of defining, designing, developing, and deploying. The research is limited to the development stage. The first stage, defining is determining and analyzing community needs in knowing the level of knowledge, reading sources and community needs for lichen diversity enrichment books.

The second stage is the design. This stage is done by selecting the media and format. The selected media is in the form of an enrichment book based on the research activities that have been carried out. The results of the field research are then implemented into the contents of the book in a systematic, factual and accurate manner. Then the enrichment book is compiled by paying attention to the presentation display in the form of font type, writing layout and image layout.

The third stage is development. This stage is carried out after the design stage is completed. At this stage the aim is to produce an enrichment book that has been revised based on suggestions from material experts, linguists and graphic experts. And tested the feasibility on individuals, small groups, and limited groups.

The instrument used is in accordance with the non-text book assessment guidelines issued by Puskurbuk ^[6].

3 Results and Discussion

The development of non-text books in the form of enrichment books begins with the needs analysis and survey stages. The needs analysis was delivered through a questionnaire addressed to 30 respondents from the general public. The needs questionnaire for the general public consists of 10 statements containing an introduction to lichen, reading sources about lichen and the community's need for enrichment books. From the results of the questionnaire given, a percentage score of 43.3% was obtained for the level of knowledge of the general public about lichen and a percent score of 83% of the general public did not have sources of knowledge in the form of books or articles about lichen. The average value obtained is known that the level of knowledge and sources of knowledge of the general public is still relatively low. Therefore, it is necessary to develop an enrichment book about lichen.

The next stage is the design stage, that is selecting the media and format. The media chosen was an enrichment book with A5 size (14.8 x 21 cm) whose content was loosely arranged, creative and innovative based on the results of field research but still based on science and education. Meanwhile, the enrichment book format consists of (1) book cover; (2) Book Identity; (3) Preface (4) Table of contents; (5) List of Images; (6) List of Tables; (7) Chapter 1- Introduction; (8) Chapter 2- Overview: Lichens (9) Chapter 3- Habitat and Classification of Lichens; (10) Chapter 4- Lichen Diversity in the Bukit Barisan Forest Park Area; (11) Glossary; (12) Bibliography; (13) Author Bio.



Fig. 1. Brief Excerpt of the Enrichment Book “Diversity of Lichen Species in the Bukit Barisan Tahura Area” that has been Developed

The last stage is the development stage. This stage is the result of the translation of the design stage. The prototype/draft of the book that has been compiled and finished is then assessed by material experts, linguists, and design experts as validators and after validation, the book is also tested on respondents, namely the general public. The results of the validation and responses are used to revise the enrichment book draft. With suggestions from experts, the resulting enrichment book will meet the quality standards of the enrichment book that have been set.

The feasibility test of the enrichment book that has been developed is carried out to material experts, linguists, and design experts. Based on the results of the validation test to the experts, the average score is presented in Table 1.

Table 1. Book Assessment Results on Material, Language and Graphic Aspects

No.	Examiner	Avarage Score (%)	Categori
1.	Material Eligibility	93 %	Very Worthy
2.	Language Eligibility	91 %	Very Worthy
3.	Graphic Eligibility	91 %	Very Worthy

While the product assessment trials were carried out on individuals as many as 4 people, small groups of 10 people and limited groups of 30 people. The product assessment trial data can be seen in Figure 2 below.

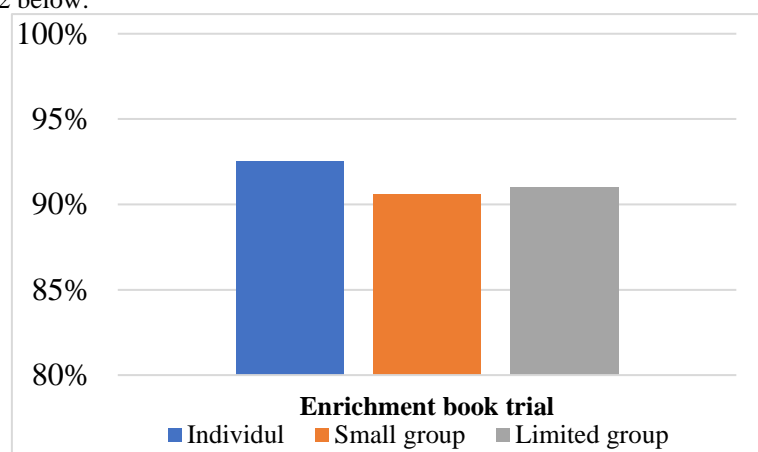


Fig. 2. Product trial assessment diagram

Based on the picture above, it was found that the product assessment of the enrichment book by individual was 92.5% with a very decent category, a small group of 90.6% with a very decent category and limited group research that was 91% with a decent category. Based on the results of validation and assessment of enrichment book products, it can be concluded that overall enrichment books are very suitable for use in the learning process or can be used by the general society.

4 Conclusion

The Lichen Diversity Enrichment book which has been developed based on research results using the 4-D development model consists of 4 chapters. The results of the validator's assessment and book product trials obtained a very feasible score for use.

5 Suggestion

The general society or students can use the enrichment book that has been developed, so it can enrich knowledge and an introduction to lichen itself. Lecturers or teachers can distribute

enrichment books that have been developed to students to see the level of effectiveness of these books considering of research is only up to the development stage.

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