

The Validity of The Encyclopedia Mandailing Ethnomedicine in The Area of Mount Sorik Marapi as a Student Learning Resource

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Abstract. This study aims to determine the validity of the encyclopedia Mandailing ethnomedicine in the area Mount Sorik Marapi as a student learning resource in ethnobotany. Subjects according to material experts, learning experts, design experts, responses from lecturers, and also responses from students. This type of research is development research using the ADDIE model. This research only reached the development stage. The results showed that based on the assessment of material experts of 85.5%, learning experts of 91.75%, and design experts of 96.67%, the average assessment of biology lecturers was 91.33%, and the average assessment of students by 89.33%. It can be concluded that the encyclopedia of ethnomedicine is appropriate to be used as a learning resource that can be used by students to support learning in ethnobotany courses.

Keywords: Encyclopedia, Ethnomedicine, Validity

1 Introduction

Indonesia is rich in plant diversity because of it is tropical rain forests. Indonesia has a total of 5490 taxa of medicinal plants, of the 5408 species that have been identified, 82 species can only be identified at the genus level because they are new species [1]. However, due to the large number of land conversions that result in habitat destruction [2], the taking of medicinal plants is not carried out sustainably [3], and the lack of knowledge of the community who considers medicinal plants only as wild plants [4]. Over time, these medicinal plants will decrease and even cannot be found in nature if there is no conservation effort.

Mount Sorik Marapi is one of the mountains located in Puncak Sorik Marapi District, Mandailing Natal Regency, North Sumatra. This mountain area is fertile because of it is great potential for natural disasters in the form of volcanic activity. It is known that people who live around Mount Sorik Marapi know the types of plants that can be used as medicine. However, along with the development of technology and information, more complete health facilities, and the number of modern medicines that enter, it is feared that this local knowledge will also

be eroded. There is a need for documentation of medicinal plants, one of which is in the form of a book.

The learning process cannot be separated from its components such as teachers, students, learning objectives, lesson materials, methods, learning tools/media, learning environment, and learning evaluation [5]. Learning media is one of the important components to be developed. The existence of learning media is needed in teaching and learning activities [6]. Learning media can be in the form of humans, objects, living things, and all components that can be used by teachers as tools to assist the learning process [7]. Learning media must be interactive, innovative, creative, and fun which makes students to further strengthen their initiative, perseverance, love, and attention to learning [8]. Books are a medium of learning that can be used in learning [9].

Based on the needs analysis of the development of ethnomedicine material books through filling out questionnaires for biology students, it is known that students have difficulties in studying ethnomedicine material. This is due to the lack of books as learning resources that can support the learning process on ethnomedicine material. Therefore, most students who have filled out research questionnaires need books that can be used as learning resources.

Learning resources are everything that can be used as a source to improve the quality of teaching and learning to achieve the objectives of learning [10]. Learning resources that can be used for students must be following the character and abilities of these students [11]. Learning will be better if learning resources are used optimally [10]. Good learning resources will provide convenience for students to obtain information, knowledge, and learning experiences in the learning process [12].

One source of learning is books. Books not only act as a source but also as a medium of delivery that plays an important role in the learning process [13]. Based on research [14] that less interesting textbooks will make students easily bored and less interested in learning, especially for students who do not understand the lesson. Likewise, students who master the lesson may reduce their academic knowledge.

Encyclopedias can be used as a source of student learning because the presentation of the material is interesting and accompanied by pictures that can increase student learning motivation. An encyclopedia is one of the reference materials that contain various kinds of information or knowledge in a basic and general nature for further information [15]. An encyclopedia is an alternative learning resource that is easy to understand and fun and very helpful to achieve learning objectives [16]. Encyclopedias are unique from other books because they are arranged alphabetically which makes it easier for readers to use them and have a list of terms accompanied by explanations of the terms [17]. From the explanation above, it is necessary to develop an ethnomedicine encyclopedia of the Mandailing ethnic in the Mount Sorik Marapi area which can be used as a learning resource by students.

2 Method

Types of research

This research is a Research and Development research. Development research is research that aims to develop new product designs, test the effectiveness of a product, design, and develop a product [18]. The research model uses the ADDIE (Analysis, Design, Development,

Implementation, and Evaluation) model. In study this is restricted until on development stage, stage next will be discussed in another writing.

Time and The place Study

The book development implementation will be carried out from August 2021 to February 2022. The research site is at the Department of Biology, FMIPA, State University of Medan, which is located at Jalan William Iskandar Pasar V Medan Estate, Postal Code 20221, Medan.

Data Collection Instruments and Techniques

Research instruments to obtain data validity are in the form of validation sheets for expert validators (material experts, learning experts, and design experts), response sheets according to lecturers, and response sheets according to students. The validation sheet has different aspects and different indicators that are tailored to each individual's expertise. The score for validity uses a 4 scale assessment, namely: very valid, valid, less valid, and invalid. At the end of the validation sheet, there is a suggestion column written by the validator for book improvement.

Development Research Procedure

The development research procedure carried out is as shown in the flow chart shown in Figure 1.

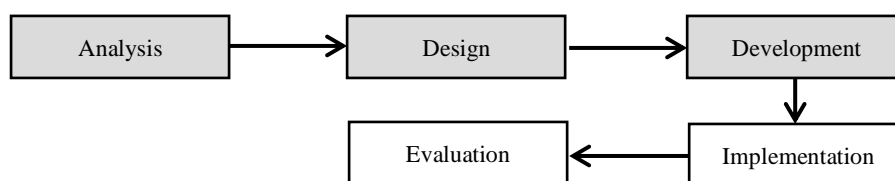


Figure 1. The Flowchart of Encyclopedia Book Development

Data Analysis

The score results from the validation sheet provided by the validator are then presented as a percentage with the formula:

$$P = \frac{F}{N} \times 100\% \quad (19)$$

Information:

P = Percentage Score

F = Total Score

N = Total Score Maximum

The results of the percentage scores are then described using the categories in Table 1.

Table 1 . Book Validity Criteria [20]

No	Value Scale (%)	Validity Level
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1	85.01 - 100%	Very valid, can be used but need small revision
2	70.01 – 85.00 %	Valid, can be used but need small revision
3	50.01 – 70.00 %	Less valid, can be used but needs many revision
4	0.00 – 50.00 %	Invalid, cannot be used

3 Results and Discussion

Results

The development encyclopedia book developed in this research uses the ADDIE research model (Analysis, Design, Development, Implementation, and Evaluation). However, the article this is only until on development stage. Each research result will be discussed as follows.

Book Development Design of Encyclopedia Mandailing Ethnomedicine

The encyclopedia Mandailing ethnomedicine in the area Mount Sorik Marapi was designed based on two stages, namely the initial stage which is the initial draft of the book which includes four components, namely: 1) the cover of the book; 2) the introduction to the book; 3) the contents of the book; 4) the cover of the book. While the second stage is in the form of combining the initial draft of the book with the results of the Mandailing ethnomedicine study or a comparison between the results of the Mandailing ethnomedicine study and the literature study.

Validity Results of Encyclopedia Mandailing Ethnomedicine

The encyclopedia Mandailing ethnomedicine that has been written and designed is then further validated by experts (material experts, learning experts, and design experts), as well as asking for responses from lecturers and students as book users. The results of the product validation of the encyclopedia Mandailing ethnomedicine are as follows.

Material Expert Validation

The results of the assessment according to material experts on the development of the encyclopedia Mandailing ethnomedicine can be seen in Table 2.

Table 2. Validation Results of Material Expert

No	Component Evaluation	Percentage Rating (%)	Category
1	Scope Theory	96	Very valid, can be used but need small revision
2	Accuracy Theory	84	Valid, can be used but need small revision
3	Update and Contextual	82	Valid, can be used but need small revision
4	Obedience on Law Writing and Legislation	94	Very valid, can be used but need small revision
5	Efficiency Book Ethnomedicine on Learning	85	Valid, can be used but need small revision

6	Component language	93	Very valid, can be used but need small revision
7	Suitability with Rule Indonesian	75	Valid, can be used but need small revision
8	Use Term	75	Valid, can be used but need small revision
	Average	85.5	Very valid, can be used but need small revision

Based on the results of the assessment by the material expert validator in Table 2. The results obtained are 85.5% with very valid criteria, can be used but need minor revisions. Validation is carried out in terms of material coverage, material accuracy, up-to-date and contextual, compliance with laws and regulations, efficiency of ethnomedicine books in learning, linguistic components, conformity with Indonesian language rules, and use of terms. Thus, encyclopedia Mandailing ethnomedicine in the area of Mount Sorik Marapi has met the eligibility requirements in terms of material so that it can be used as a learning resource for students.

Learning Expert Validation

The results of the assessment according to learning experts on the development of the encyclopedia Mandailing ethnomedicine can be seen in Table 3.

Table 3. Validation Results of Learning Expert

No	Component Evaluation	Percentage Rating (%)	Category
1	Technique Presentation	96	Very valid, can be used but need small revision
2	Presentation Theory	89	Valid, can be used but need small revision
3	Presentation Learning	85	Valid, can be used but need small revision
4	Completeness Presentation	97	Very valid, can be used but need small revision
	Average	91.75	Very valid, can be used but need small revision

Based on the assessment by the learning expert validator in Table 3, the average rating obtained is 91.75% with very valid criteria, can be used but needs minor revisions. The validation carried out by learning experts includes presentation techniques, presentation of material, presentation of learning, and completeness of presentation. Thus, encyclopedia Mandailing ethnomedicine in the area of Mount Sorik Marapi has met the eligibility requirements in terms of learning so that it can be used as a learning resource for students.

Design Expert Validation

The results of the assessment according to design experts on the development of the encyclopedia Mandailing ethnomedicine can be seen in Table 4

Table 4. Validation Results of Design Expert

No	Component Evaluation	Percentage Rating (%)	Category
1	Size Book	100	Very valid, can be used but need small revision
2	Cover Design	94	Very valid, can be used but need small revision
3	Book Content Design	96	Very valid, can be used but need small revision
	Average	96.67	Very valid, can be used but need small revision

Based on the assessment by design expert validators in Table 4, the average rating obtained is 96.67% with very valid criteria, can be used but needs minor revisions. Validation carried out by design experts includes book size, cover design, and book content design. Thus, the encyclopedia Mandailing ethnomedicine in the area Mount Sorik Marapi has met the eligibility requirements in terms of design so that it can be used as a learning resource for students.

Assessment Results by Lecturer

The results of the assessment according to lecturers on the development of the encyclopedia Mandailing ethnomedicine can be seen in Table 5.

Table 5. Assessment Results by Lecturers

No	Component Evaluation	Percentage Rating (%)		Category
		Lecturer 1	Lecturer 2	
1	Content Eligibility	94	94	Very valid, can be used but need small revision
2	Presentation Book	88	90	Very valid, can be used but need small revision
3	Language	92	90	Very valid, can be used but need small revision
	Average	91.33		Very valid, can be used but need small revision

Based on the results of the assessment by two lecturers in Table 5, the average rating of 91.33% with very valid criteria, can be used but needs minor revisions. The validation carried out by the lecturer is seen from the aspect of the feasibility of content, book presentation, and also language. Thus, the encyclopedia Mandailing ethnomedicine in the area of Mount Sorik Marapi can be used as a learning resource for students.

Assessment Results by Student

The results of the assessment according to the student on the development of the encyclopedia Mandailing ethnomedicine can be seen in Table 6.

Table 6. Assessment Results by Student

No	Component Evaluation	Percentage Rating (%)			Category
		Individual	Small Group	Group Limited	

1	Appearance Book	93	94	90	Very valid, can be used but need small revision
2	Topics Discussion	94	90	90	Very valid, can be used but need small revision
3	Serving Theory	89	92	89	Very valid, can be used but need small revision
4	Use Language	81	86	90	Valid, can be used but need small revision
5	Error inside Book	83	85	87	Valid, can be used but need small revision
	Average		89.33		Valid, can be used but need small revision

Based on the results of the assessment by students in Table 6, the average rating of 89.33% with very valid criteria, can be used but needs minor revisions. The assessment can be seen in terms of the appearance of the book, the topic of discussion, the presentation of the material, the use of language, and errors in the book. Thus, the encyclopedia Mandailing ethnomedicine in the area of Mount Sorik Marapi can be used as a learning resource for students.

5 Discussion

The results of the development research carried out were the Mandailing ethnic ethnomedicine encyclopedia in the Mount Sorik Marapi area. Encyclopedias are writings that contain explanations with various kinds of clear and easy to understand information all about sciences or specifically in a branch of science that is arranged in the article section with a topic [21]. The encyclopedia is equipped with various scientific information and is also supported by original photographs [22]. Encyclopedias can be used as learning resources because they have information with detailed explanations of certain topics and are accompanied by interesting pictures for readers [17].

The first step in this research is analysis. The analysis carried out is an analysis of the needs of student learning resources, an analysis of students' knowledge and skills, and an analysis of the material following the development of the book. This analysis stage is carried out to find out the needs of students for the availability of books and also serves as the main basis for developing books before moving on to the next stage of development [23]. From this analysis, it is known that the main problem for students is that students have difficulty when learning about ethnomedicine. This is due to the lack of handbooks that are used as learning resources.

The encyclopedia Mandailing ethnomedicine consists of 4 parts, namely: 1) the book cover which consists of the front cover and the back cover of the book; 2) the introduction section which contains the introduction, introduction, and table of contents; 3) the content section consists of the concept of ethnomedicine, the diversity of ethnomedicine in Indonesia and especially ethnomedicine in North Sumatra, the use of medicinal plants by the Mandailing ethnicity, and efficacious compounds in plants. This book is also equipped with scientific names, local names, families, general characteristics of plants, habitats, methods of use, and chemical content of medicinal plants; 4) the closing section consists of a bibliography, glossary, scientific name index, regional name index, and author's biography.

The feasibility of the encyclopedia is assessed based on the average of the indicators that have been determined to be validated by expert validators (material experts, learning experts, and design experts) and then revised gradually according to suggestions and input from expert validators. The material expert assessment is 85.5% very valid category, can be used but need small revision (Table 2), learning expert is 91.75% very valid category, can be used but need small revision (Table 3), and design expert is 96.67% very valid category, can be used but need small revision (Table 4), the average assessment of biology lecturers is 91.33% very valid category, can be used but need small revision (Table 5), and the average assessment of 89.33% of students in the very valid category, can be used but need small revision (Table 6).

The same study was also conducted by [24] that based on the assessment of material experts, an average of 93.18% was obtained in the very valid category, the media expert assessment has change an average of 93.27% with a very valid category, based on the teacher's assessment of 92.5% in the very practical category, and based on student responses 93.75% in the very practical category. Likewise with research [25] based on the validation of material experts of 90.1%, media experts of 97.65%, teacher responses of 90.91% with each category being valid and also small-scale student responses of 90.95% and a large scale of 85.98%.

Research [26] that based on the validation of material experts is 91.1%, media experts are 91.7%, teacher responses are 88.53%, and student responses are 89.8% with each category very good. Research [27] based on material experts of 87.5%, media experts of 88%, teacher responses of 97% with each category very feasible, and student responses based on individual trials of 86.6%, small group trials of 93.3%, and a limited group trial of 97.3% with each category being a feasible category.

The use of encyclopedias as learning resources is able to improve student learning outcomes and understanding [28]. This is because the encyclopedia can be an enrichment material outside of the core material that is conveyed by the teacher to students so that the level of understanding is better. As a teacher, you should adjust the material with appropriate learning resources for students so that students' understanding increases in the learning process.

6 Conclusion

The results showed that based on the assessment of material expert is 85.5% very valid category, can be used but need small revision, learning expert is 91.75% very valid category, can be used but need small revision, and design expert is 96.67 % very valid category, can be used but need small revision, the average assessment of biology lecturers is 91.33% very valid category, can be used but need small revision, and the average assessment from students is 89.33% very valid category, can be used but needed small revision. Thus, the encyclopedia Mandailing ethnomedicine in the area of Mount Sorik Marapi can be used as a learning resource for students.

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