

Development of Encyclopedia Based on Ethnogastronomy of Sambas Malay Porridge

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Abstract: Biology learning is essentially learning that always relates science to the environment and living things. Therefore, there is a need for learning media that contains local wisdom related to the surrounding environment. This study aims to determine the validity of the ethnogastronomy-based encyclopedia of Sambas Malay porridge and to determine student responses to the ethnogastronomy-based encyclopedia of Sambas Malay porridge. The research method used is R&D, in this study a 4-D development model is used, namely the define, design, development and disseminate stages, but in this development the researcher only reaches the development stage. This research was conducted on students of class X SMAN 1 Tekarang. The research instrument used was a questionnaire to obtain product validation and determine student responses to the developed product. Product validation was carried out by material experts, linguists, media experts, and student responses. The results showed that the encyclopedia developed was considered valid. The results of the material expert validator assessment were 93.81% (very valid), language experts were 86.67% (very valid), media experts were 95.00% (very valid). Student responses were obtained through 2 stages, namely small-scale trials of 72.58% (positive) and large-scale trials of 90.00% (very positive). Overall, it can be concluded that the encyclopedia developed is valid and gets a positive response from students.

Keywords: Development; Encyclopedia; Ethnogastronomy; Porridge

Introduction

Sambas Malay is one of the various tribes in Sambas. One of the local wisdoms in Sambas is traditional food (Sabila et al., 2021). Traditional food is a form of culture that is characterized by regional, specific, various kinds and types that reflect the natural potential of each region (Harsana et al., 2023). By paying attention to how it is processed and how it is served, the function of food in the culture of the community will be known (Juniarti, 2021). The study of cooking culture by paying attention to how it is processed and how it is served, the function of food in the culture of the community is known as ethnogastronomy (Panae et al., 2021). One of the traditional foods in the Sambas region is porridge. Along with the times, porridge is only known as

ordinary food for daily needs, without knowing the ethnogastronomy of the porridge.

Teachers, who are an important component in the implementation of education, meet directly with students in the learning process (Lestari et al., 2021). Teachers must have the ability to understand students with various differences in order to be able to help them in dealing with learning difficulties. Therefore, teachers are required to be able to provide and use various learning media in accordance with the material so that students are more effective and efficient in learning (Dewantara et al., 2020).

According to Nurfadhillah et al. (2021) Learning media is a tool that can help the teaching and learning process so that the meaning of the messages conveyed becomes clearer and the educational or learning objectives can be achieved effectively and efficiently.

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Biology learning is essentially learning that always relates science to the environment and living things. Therefore, it is necessary to have learning media that contains local wisdom related to the surrounding environment (Wardianti & Jayati, 2018). Local wisdom is all forms of wisdom based on good values that are believed, applied and always maintained for a long time (from generation to generation) by a group of people in Local wisdom can be used as a basis of knowledge to make innovations in biology learning in school (Askodrina, 2021). Information related to local wisdom in Sambas Malay in West Kalimantan is still rarely known. Therefore, it is important to study the local wisdom of the Sambas Malay community such as Sambas Malay porridge.

Seeing this problem, there needs to be an effort to preserve local wisdom, one of which is by implementing ethnogastronomy-based learning media. Ethnogastronomy of Sambas Malay porridge can be used as a learning medium to understand not only its cultural and historical aspects, but also the process of making it which involves a variety of cooking techniques and local ingredients. This can help students to learn about cultural heritage and culinary diversity, as well as understand the importance of maintaining and preserving local culinary traditions (Putri, 2024). In addition, learning Sambas Malay porridge can also broaden students' horizons about culture and traditional food in Sambas. One of the interesting learning media is encyclopedia. An encyclopedia is a collection of writings containing a complete variety of information arranged alphabetically and printed in book form. Encyclopedia is identical with pictures, seems lighter, interesting, and concise (Renita et al., 2020).

There have been many studies that develop Encyclopedia in biology learning. Setiadi & Setiawati (2016) developing a specimen-based encyclopedia of vertebrate animal diversity material, Saputri et al. (2024) developing of an encyclopedia of woven plants of the Dayak simpang tribe of West Kalimantan, Nurrita (2018) developing learning media to improve student learning outcomes, and Nurdiansyah et al. (2021) developed an encyclopedia of national identity based on local wisdom. However, there is no development of an ethnogastronomy encyclopedia of Sambas Malay porridge.

Based on this description, this study aims to determine the validity and determine the students' response to the ethnogastronomy-based encyclopedia of Sambas Malay porridge. This research is expected to provide knowledge, especially in education by using ethnogastronomy-based encyclopedia learning media typical of Sambas Malay porridge, so that it can be used as one of the learning media that can be used by students.

Method

The type of research used is Research and Development (R&D), this research aims to produce a product and test the validity of the product (Banjarani et al., 2020). This research uses the 4-D development model with the stages of define, design, develop, disseminate, and disseminate (Thiagarajan, 1974). But in this development, researchers only reached the development stage.

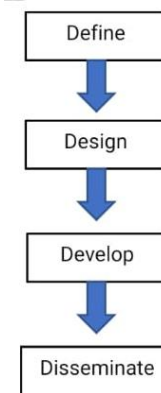


Figure 1. 4-D Model flow in the defining stage or design stage

Define is the first stage in development research. The data required for this stage is obtained from observations and interviews. In this research, the observation used is non-participant observation (Fadilah & Hakim, 2021), where the researchers analyzed the learning media currently used by students at SMAN 1 Tekarang. While the interviews conducted in this study used structured interviews where researchers used a complete set of interview guidelines to obtain data (Nuralan et al., 2022). In this study, interviews were conducted by asking questions directly to students and teachers related to learning media used by students at school. In addition, interviews were conducted with informants, namely traditional leaders, housewives, porridge sellers, and cooks with an age range of 30-70 years using snowball sampling technique, namely the selection of informants based on previous informants related to the ethnogastronomy of Sambas Malay porridge. In the define stage, there are five activities that must be carried out, namely: Front end Analysis, Learner Analysis, Concept Analysis, Specifying Instructional Objectives, and Plant Analysis on porridge (Iskariyana & Ningsih, 2021).

The design stage aims to design learning media (Candra & Okra, 2022). The initial design in making an encyclopedia is to prepare the concept to be used, after that designing in the Canva application to make it more attractive (Aini et al., 2023). Then determine the size of the encyclopedia according to UNESCO standards with

a size of 15.5 x 23 cm, Times New Roman letters with font size 12, and a spacing scale of 1.15, then make the front and back covers, inside cover page, preface, introduction, table of contents, instructions for use, book contents, bibliography and glossary. The content of the book contains various kinds of Sambas Malay porridge and plants in porridge. There are also several pictures of porridge and plants. In addition, several sources of information obtained through literature studies are also displayed (Suharso et al., 2020). Then convert the encyclopedia that has been designed in the Canva application into PDF form, then print it out.

The development stage aims to produce a valid encyclopedia media as a learning media that has been revised based on the assessment of experts (Analicia & Yogica, 2021). Furthermore, the development trials carried out were small-scale trials and large-scale trials on students (Oksa & Soenarto, 2020).

The research instrument used was a questionnaire to obtain product validation and determine student responses to the products developed. Product validation was carried out by material experts, linguists, media experts, and student responses (Liunokas & Billik, 2021). After obtaining the results, the researcher uses the suggestions obtained as product improvements (Putri & Saino, 2020). Aspects assessed by material experts include material coverage, material accuracy, activities that support the material, material sophistication, material develops thinking skills, local wisdom and the use of terms or symbols. Language experts' assessment includes clarity, communicativeness, conformity with language rules and the use of terms, symbols and icons. Media expert assessment includes ease and simplicity, general appearance, attractiveness, usefulness of the material and completeness of the encyclopedia. And the last student response includes aspects of student response to the ethnogastronomy-based encyclopedia media of Sambas Malay porridge which was carried out by 58 class X students. After obtaining the results of validation and assessment, data analysis was carried out using a Likert scale of 1 to 5 equation 1 used according to Nurhidayah et al. (2015).

$$P = \frac{\sum x}{\sum xi} \times 100\% \tag{1}$$

Description:

P = Percentage of score acquisition

$\sum x$ = Total score obtained

$\sum xi$ = Total number of scores

100% = constant

The percentage values obtained were interpreted with reference to Table 1. Furthermore, the analysis of student response questionnaires will be carried out with small-scale trials and large-scale trials. Therefore,

students are given a questionnaire sheet which is useful for filling in the assessment after using and operating the product. The percentage value obtained is interpreted with reference to Table 2.

Table 1. Criteria for learning media validity

Score in percent (%)	Category of validity
0-20	Very invalid
21-40	Invalid
41-60	Fairly valid
61-80	Valid
81-100	Very valid

(Meidita & Susilowibowo, 2021)

Table 2. Student response interpretation criteria

Percentage (%)	Interpretation Criteria
84 < score ≤ 100	Very positive
68 < score ≤ 84	Positive
52 < score ≤ 68	Regular
36 < score ≤ 52	Negative
20 < score ≤ 36	Very negative

(Oktaviara & Pahlevi, 2019)

Result and Discussion

Based on observations made at SMAN 1 Tekarang that the learning process in the classroom teachers more often use learning media such as textbooks and LKS. While the supply of textbooks at school is still limited and for other learning media is not yet available. The limited supply of learning media at school resulted in the learning process not running optimally. In addition, teachers do not have learning media references that contain Sambas Malay local wisdom that can be used in assisting the learning process. After knowing the problems that exist at school, one effort is needed to choose a more varied media. One of the media offered is media that is able to make students understand the material more easily and not easily bored which is delivered through Encyclopedia media.

The development of this encyclopedia media has been completed in accordance with the recommended 4-D development procedure (four D model) (Thiagarajan, 1974). Based on the development procedure that has been stated, the making of this encyclopedia learning media is carried out with several stages of development to produce the final research product, namely:

Define Stage

The define stage is to establish and define learning requirements. In the define stage there are five activities that must be done, namely (Iskariyana & Ningsih, 2021): The front end analysis stage was conducted by interviewing biology teachers and students of class X MIA and IIS SMAN 1 Tekarang. This stage aims to bring up and determine the basic problems faced in learning

Biology so that the development of learning media is needed (Ismail et al., 2020). Based on the results of the biology teacher interview, it is concluded that the main problem at school is that in the classroom teachers more often use learning media such as textbooks and LKS. While the supply of textbooks at school is still limited and for other learning media is not yet available. The limited supply of learning media at school results in the learning process not running optimally (Suryawan & Permana, 2020). In addition, teachers do not have learning media references that contain Sambas Malay local wisdom that can be used in assisting the learning process.

Then at the student analysis stage, based on the results of interviews with X MIA and IIS class students, it is known that students have very good learning motivation because students prefer interesting media, lots of pictures and little writing. However, during the interview students said several obstacles such as boredom because the learning media used were too much writing and few pictures.

The researcher then conducted the next stage, namely concept analysis to determine the material. At this stage, the researcher analyzes the concepts to be taught, arranges the steps to be taken, and then prepares the materials (Amali et al., 2019). Concept analysis is carried out by identifying biology material for class X MIA and IIS even semester taught and selecting material in accordance with local wisdom that will be included in the encyclopedia. The selection of material is based on the existing problems at school, namely some students find it difficult to understand Biodiversity material due to lack of media which results in student scores not in accordance with the teacher's criteria (Fadilah & Hakim, 2021). The biology teacher also said that the learning of Biodiversity at school has never been associated with Sambas local wisdom, especially Sambas Malay porridge.

The next stage is the formulation of learning objectives. This activity is adjusted to the concept analysis. students are expected to be able to carry out learning activities as well as be able to understand the concept of biodiversity material in Sambas, West Kalimantan (Rahidu et al., 2023). The results of the formulation of learning objectives that are carried out become guidelines for the development of encyclopedia learning media.

The last stage carried out is the analysis of plants in porridge. Based on the results of research conducted in Tekarang, Jawai, Teluk Keramat and Tebas villages. The informants who were successfully interviewed totaled 30 people. The informants interviewed were traditional leaders, housewives, porridge sellers and cooks who had knowledge about the ethnogastronomy of Sambas Malay porridge. Based on the results of interviews with

informants, there were 19 types of plants in porridge as shown in Table 3.

Table 3. Types of plants in Porridge

Local Name	Scientific Name	Families	Parts used
Shallots	<i>Allium cepa</i>	Liliaceae	Tubers
Garlic	<i>Allium sativum</i>	Liliaceae	Tubers
Beast	<i>Premna serratifolia</i>	Verbenaceae	Stems and leaves
Corn	<i>Zea mays</i>	Gramineae	Seeds
Ginger	<i>Zingiber officinale</i>	Zingiberaceae	Rhizome
Green beans	<i>Phaseolus radiatus</i>	Papilionaceae	Seeds
Long beans	<i>Vigna sinensis</i>	Papilionaceae	Seeds
Kale	<i>Ipomoea aquatica</i>	Convolvulaceae	Stems and leaves
Catuk	<i>Saurofus androgynus</i>	Phyllanthaceae	Stems and leaves
Coconut	<i>Cocos nucifera</i>	Arecaceae	Fruit
Kesum	<i>Persicaria odorata</i>	Polygonaceae	Stems and leaves
Turmeric	<i>Curcuma longa</i>	Zingibraceae	Leaves
Fern	<i>Stenochlaena palustris</i>	Blechnaceae	Stems and leaves
Galangal	<i>Alpina galangal</i>	Zingiberaceae	Rhizome
Rice	<i>Oryza sativa</i>	Graminae	Fruit
Pandanus	<i>Pandanus amaryllifolius</i>	Pandanacea	Leaves
Citronella	<i>Cymbopogon nardus</i>	Graminae	Stems
Sweet potato	<i>Ipomoea batatas</i>	Convolvulaceae	Tubers
Cassava	<i>Manihot esculenta</i>	Euphorbiaceae	Tubers

Design Stage

The initial design in making an encyclopedia is to prepare the concept to be used, after that designing in the Canva application to make it more attractive (Yuniastuti et al., 2021). Then determine the size of the encyclopedia according to UNESCO standards with a size of 15.5 x 23 cm, Times New Roman letters with font size 12, and a spacing scale of 1.15. The next stage is designing encyclopedia media by designing the front cover and back cover and choosing colors that are contrasting and attractive to students (Nurmasari et al., 2021). Then compile the material as the content of the encyclopedia. The material in the encyclopedia contains the results of the research that has been done, namely the ethnogastronomy of Sambas Malay porridge. The material is compiled complete with pictures of each type of plant. This section consists of the front part, the core part and the closing part (Dewi & Handayani, 2021). The front part consists of the front cover of the encyclopedia which contains the title, author's name and illustration image. The core part contains various kinds of Sambas Malay porridge equipped with food descriptions, time served, plants used in porridge, ingredients used in porridge, how to make porridge, video barcode of the porridge making process and ethnobiology in porridge.

In addition, it also contains a list of plants in porridge which is equipped with classification, description, pictures, and plant morphology, chemical content and is found in any porridge. The closing part of this encyclopedia is composed of a glossary, bibliography and author profile.

Development Stage

Development Stage is the third stage in the research. The development stage aims to produce a valid encyclopedia learning media based on the revision of criticisms and suggestions from validator experts based on student response questionnaires to learning media both in small-scale tests and large-scale tests (Sari & Nurjannah, 2022).

The product validation process is carried out by validators, in this case lecturers or experts who have experience assessing a new product. The results of the analysis are used as a guideline for revising / correcting product deficiencies after going through the validation process (Dewimarni et al., 2022). The validators selected were 9 people, consisting of 2 lecturers and 1 media expert teacher, 2 lecturers and 1 material expert teacher, and 2 lecturers and 1 language expert teacher. As for student responses, the small-scale test was conducted to 11 students and the large-scale test to 29 students.

Validation of learning media by material experts aims to find out the opinion of material experts regarding the validity of the product as a learning media and as a basis for improving and improving the quality of learning media from the material aspect.

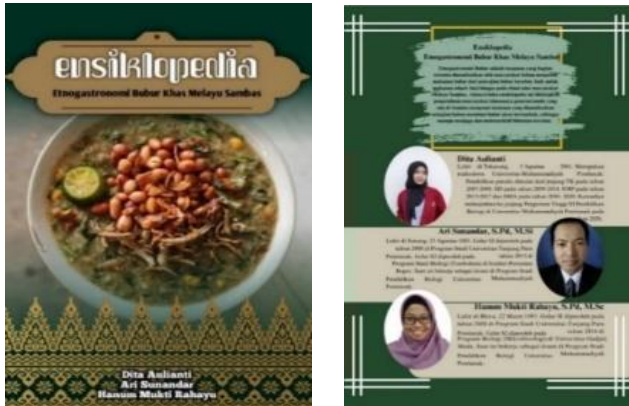


Figure 2. Encyclopedia book cover



Figure 3. The body of the book

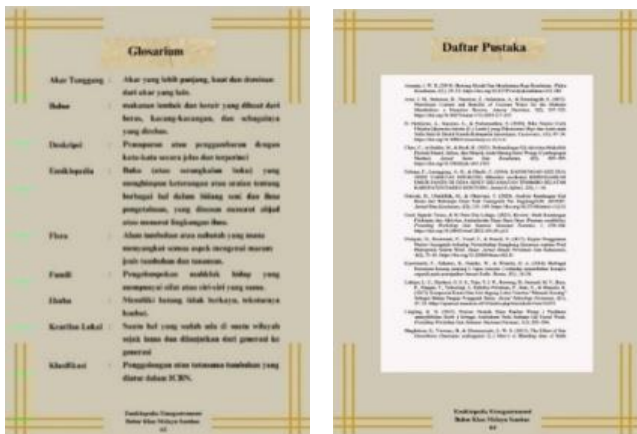


Figure 4. The book cover

Table 4. Material expert assessment of encyclopedia learning media

Material Validator	Validity (%)	Criteria
1	98.57	Very valid
2	82.86	Very valid
3	100	Very valid
Average	93.81	Very valid

Based on the data in Table 4, it explains that the percentage of validity obtained through the material expert validation process is 93.81%. These results mean that the learning media developed are included in the very valid category, with minor revisions. According to Meidita & Susilowibowo (2021) if the validation value is between 81.00 to 100%, it is classified as very valid, can be used but needs minor revisions.

Validation of learning media by linguists aims to find out the opinion of linguists regarding the validity of the product as learning media and as a basis for improving and improving the quality of learning media.

Table 5. Linguist assessment of encyclopedia learning media

Language Validation	Validity (%)	Criteria
1	80.00	Valid
2	82.86	Very valid
3	97.14	Very valid
Average	86.67	Very valid

Based on the data in Table 5, it explains that the percentage of validity obtained through the expert validation process is 86.67%. These results mean that the learning media developed are included in the very valid category, with minor revisions. According to Meidita & Susilowibowo (2021) if the validation value is between 81.00 to 100%, it is classified as very valid, can be used but needs minor revisions.

Validation of learning media by media experts aims to find out the opinion of media experts regarding the validity of the product as learning media and as a basis for improving and improving the quality of learning media.

Table 6. Media expert assessment of encyclopedia learning media

Media Validator	Validity (%)	Validity
1	86.00	Very valid
2	100	Very valid
3	100	Very valid
Average	95.00	Very valid

Based on the data in Table 6, it explains that the percentage of validity obtained through the media expert validation process is 95.00%. These results mean that the learning media developed are included in the very valid category, with minor revisions. According to Meidita & Susilowibowo (2021) if the validation value is between 81.00 to 100%, it is classified as very valid, can be used but needs minor revisions.

After validation and getting the results that the learning media is very valid, the encyclopedia learning media meets the criteria to enter the next step, namely getting student response data (Suryawan & Permana, 2020). According to Fatmawati & Anjarsari (2021), student response is a social reaction carried out by students in response to influences or stimuli in themselves from repetition situations carried out by others. Rianda et al. (2024) mentioning the positive response of students can be used as a benchmark that students feel more comfortable with the learning media used in the learning process. Student response data was obtained through 2 stages, namely small-scale trials and large-scale trials.

Table 7. Student response assessment

Experiment	Percentage (%)	Criteria
Small-scale test	72.58	Positive
Large-scale test	90.00	Very positive

Based on the data in Table 7, it explains that the percentage of student responses through small-scale trials is 72.58%. According to Oktaviara & Pahlevi (2019) if the student response value is between 68 and 84%, it is

classified as positive. This means that the student response to the encyclopedia learning media developed gives a positive response.

Meanwhile, a large-scale trial of 90.00% was obtained. According to Oktaviara & Pahlevi (2019) if the student response value is between 84 to 100%, it is classified as very positive. This means that students' responses to the encyclopedia learning media developed give a very positive response.

Conclusion

Based on the results of the study, several conclusions were obtained, namely the encyclopedia learning media fulfilled the validity aspects in the material aspect of 93.81% (very valid), the language validity aspect obtained an average score of 86.7% (very valid), and the material aspect obtained an average score of 95.00% (very valid). The data obtained stated that the validator gave a very valid response to the development of learning media encyclopedia based on ethogastronomy of Sambas Malay porridge. And encyclopedia learning media with student responses to learning media. In the small-scale trial, student responses obtained an average score of 72.58% (positive). In the large-scale trial, the average score was 90.00% (very positive). The data obtained stated that the respondents gave a very positive response to the learning media encyclopedia based on the ethogastronomy of Sambas Malay porridge.

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Authors Contribution

D.A.: research concept and design, encyclopedia development, data collection, data analysis, manuscript writing and editing; A.S. and H.M.R.: guidance during research and script writing.

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Conflicts of Interest

The authors declare no conflict of interest.

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